
SAMSUNG'S GALAXY NOTE GOES BIG

Also: 50 Cent's \$400 Headphones | MuteMath's Darren King Does the Distro Q&A

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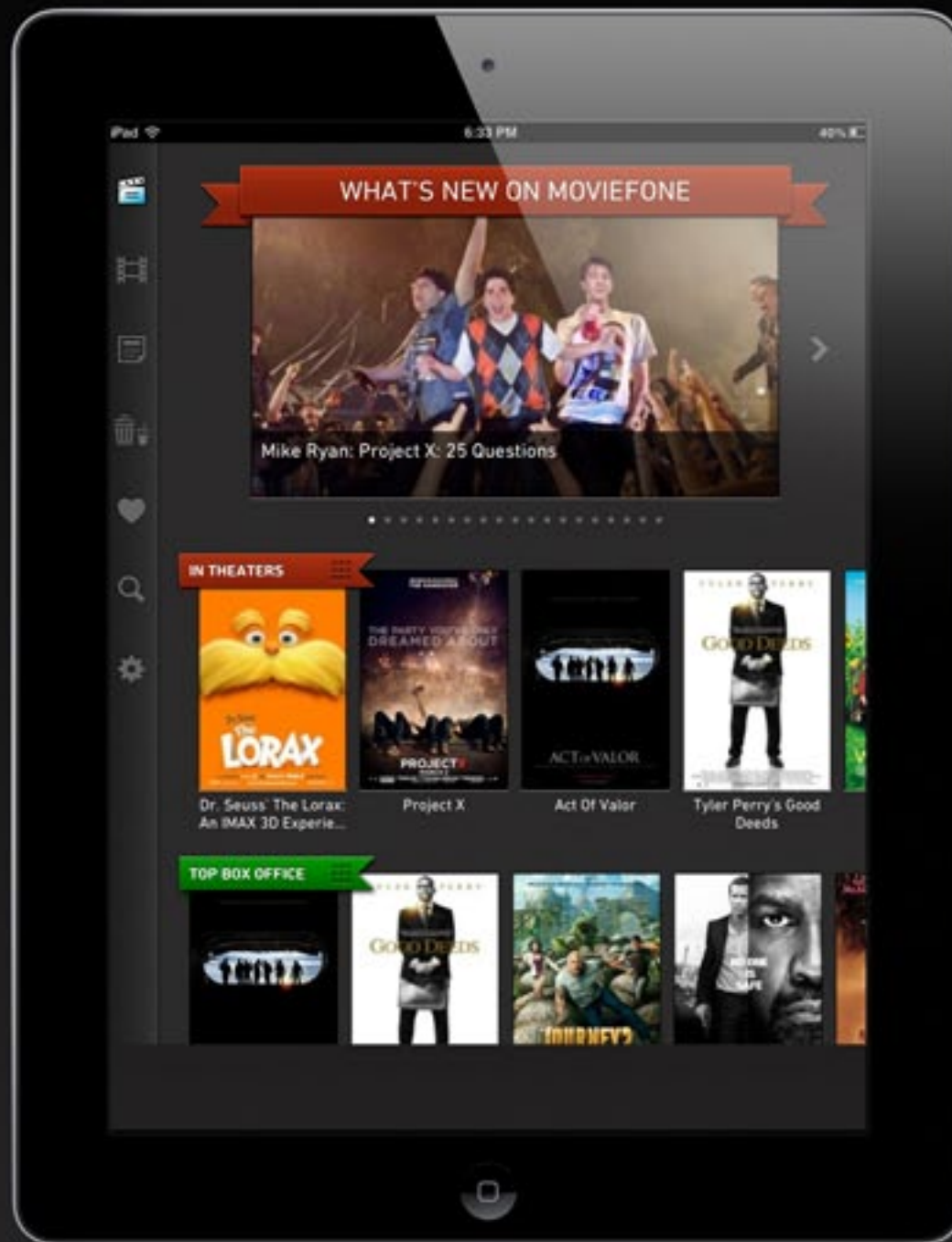
SHOT IN THE DARK

CANON'S 5D MARK II TAKES LOW-LIGHT
PHOTOGRAPHY TO NEW HEIGHTS

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DISTRO Issue #34...



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By Engadget Staff

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Sony's Vita Exploit Offensive Begins in Force

Editor's Letter

First off, an apology. If you read last week's letter you know I said that our noble Distro app wasn't yet updated to work with Retina displays on the new iPad. Well, shortly after that issue went to our virtual printer the app update was approved and, hey presto, we shipped in proper high definition. So, while I hate to be wrong, in this case I don't mind so much.

This week the story that caught my eye was actually something of a small one that portends a massive story to come. Sony quickly, and without notice, pulled a Vita game (*Everybody's Tennis*) from its PlayStation Store after learning the title was vulnerable to an exploit that would allow hackers to have their way with the touch-happy handheld. This is the second game pulled for such reasons and I feel quite confident in saying it won't be the last.

Changes are also afoot at the executive level at Sony, with new CEO and *Ridge Racer* fan Kaz Hirai shaking up the corporate structure a bit and creating an inner circle of big-wigs to bring the company's many divisions together. The idea is to finally



form "One Sony," the primary goal outgoing CEO Howard Stringer was previously tasked with. He largely failed to deliver. Hopefully Kaz can do better.

Nokia and AT&T announced this week that the large yet seemingly in-charge Lumia 900 will be available for purchase

on April 8th. That's not a huge surprise, but the price point is: just \$100 on-contract. That's shockingly good for what looks to be the best Windows Phone to hit the market yet. I'd bet my hat that the price is being heavily subsidized by Microsoft to help this flagship device make an impact. It's too early to tell for sure, but for now all signs are pointing to that being a very good move. The only question now is which color to buy. The white and black versions are gorgeous, but I'm a bit partial to the cyan model myself.

Samsung's blockbuster Galaxy S II handset is getting Ice Cream Sandwich, a fact that we already knew but became all the more apparent when the Android 4.0 ROM leaked onto the internets courtesy of *Rootz-wiki*. Those who are craving the latest flavor of the OS and are too hungry to wait for the official release can find a link to the download online. Hurry, before it starts to melt.

Snicker if you want, but early internal combustion-powered cars weren't exactly reliable themselves.

Another successful Samsung handset will be getting the same treatment in short order, with the company itself showing off the 5.3-inch Note superphone running ICS in a photo on the company's Facebook page. No details on just when this might be coming, nor on how many calories a Note-sized ice cream sandwich will pack, but diet-ers will likely want to make the appropriate compensation elsewhere in their meal plan.

ASUS, too, is teasing some updates, this time for its Transformer Prime tablet. The new software revision, thrillingly numbered 9.4.2.21, is said to be hitting before the end of March and bringing a suite of welcome tweaks to the tablet, like an upgraded camera firmware and support for ad hoc wireless networking.


Angry Birds Space has exceeded 10 million downloads already, hitting that milestone after just three days of availability. There's no word on how many of those were paid downloads and how many were of the free Android version, but I have to imagine that the Rovio chaps are rightfully quite

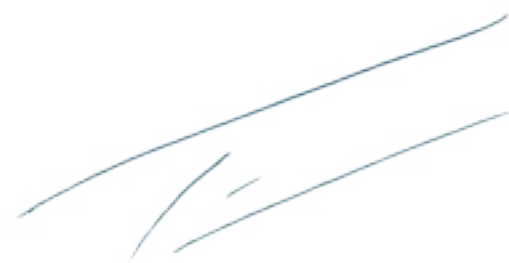
pleased with themselves.

The Xbox 360 received some serious multimedia augmentation this week with the release of HBO Go, MLB.tv and Comcast's Xfinity TV apps. Non-gamers now have more than ever to do on their console and those worried about bandwidth caps will be happy to know that Comcast's app won't count against their monthly usage. We would encourage users to try to play a game on their Xboxes at least once a week, if only to maintain the thing's pride.

Finally, a few misfires in the electronic vehicle ranks this week. Chevy is sending out replacement 120-volt chargers to Volt owners, providing one said to be more durable and, oddly, more consistent. Fisker, meanwhile, is replacing the battery packs on all 640 Karmas that have been sold to date, ostensibly soothing the battery woes that famously sidelined the car *Consumer Reports* was given to test. Snicker if you want, but early internal combustion-powered cars weren't exactly reliable themselves.

In this week's Distro we have Zach Honig's review of Canon's

EOS 5D Mark III, where he'll tell you just how this low-light shooter compares to Nikon's big bad D3S. Brad Molen takes on the Verizon Wireless LTE flavor of the Galaxy Tab 7.7, the tablet that I would buy if I had any desire to sign on for yet another data plan. (I don't.) Dana Wollman evaluates the Samsung Series 5 laptop, a device that takes the Ultrabook moniker to new levels of meaninglessness. Joe Pollicino gets down with the SYNC by 50 wireless cans and Joseph Volpe dives deep into a pre-release Samsung 10.1 Galaxy Note. Finally, we have a new IRL, more Recommended Reading, a Q&A with Mutemath's Darren King and Ross Rubin takes an *Angry Birds*-themed look at the world of the smartphone. It's fresh, it's clean, it's the latest issue of Distro, so relax and enjoy. 



TIM STEVENS
EDITOR-IN-CHIEF,
ENGADGET

Surprise! Study Finds Internet is Worth a Lot of Money

Ever wondered how much the interwebs contribute to Uncle Sam's bottom line? Thanks to the Boston Consulting Group, now you don't have to. It's estimated the net contributes a cool \$684 billion to the US gross domestic product. That's roughly 4.7 percent of US GDP, the same tranche as its effect on Japan's economy, but less than the 5.5, 7.3 and 8.3 percent clocked in by China, South Korea and the United Kingdom, respectively. And per the report, the internet is just getting started, with future growth expected to hit eight percent on average by 2016 for developed countries, and well north of 20 percent in booming economies like those of Argentina and India. — *Dante Cesa*

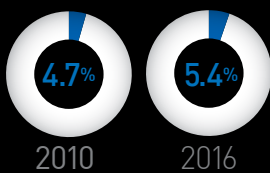
The Weekly Stat

INTERNET'S IMPACT ON GDP BY COUNTRY

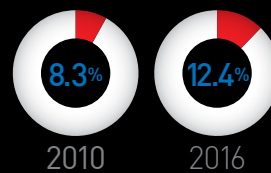
Percentage of the internet economy's contribution to gross domestic product for 2010 and projected contribution for 2016.



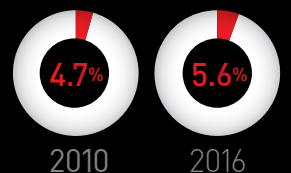
UNITED STATES



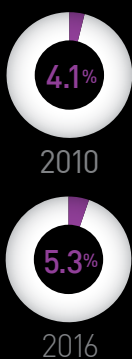
UNITED KINGDOM



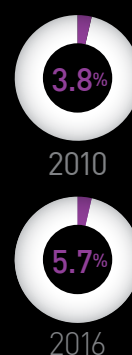
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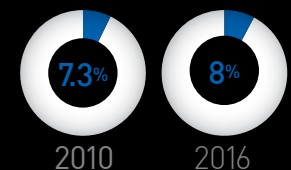
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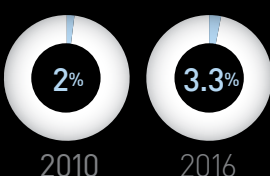
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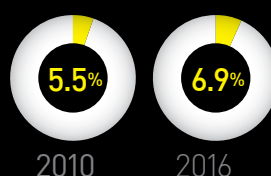
SOUTH KOREA



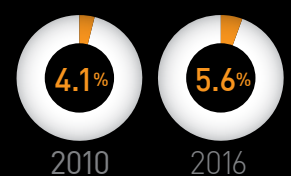
ARGENTINA



CHINA



INDIA



ANGRY NERDS

Switched On

BY ROSS RUBIN

Ross Rubin (@rossrubin) is executive director and principal analyst of the NPD Connected Intelligence service at The NPD Group. Views expressed in Switched On are his own.

Oh no! The evil pigs of purchase inhibition have taken the valuable eggs of smartphone desire and captured them within a complex structure. Fortunately, there are a number of powerful birds that can be slung through the air, space or various sets of children's movies to smash down the structure. Why can't they just fly through the air since they're birds, you may ask? Gee, you sure ask a lot of questions. Just plunk down your \$.99 and gear up for in-app purchases for these valuable premiums.

The BerryBird.

Once, this bird seemed pretty mighty, but newer breeds have left you looking for something new out of a playbook. The developer of the native launcher hasn't created one for the BerryBird, but another developer offers to create something like it for you for \$15. After positioning your cursor over the BlackBerry bird and scrolling the trackpad to the left, you let go and are greeted with a terms of use dialog box that you must scroll through. After agreeing to the terms, the bird flies through the air. The bird knocks down a bit of the structure, freeing a few eggs, but knows that it really needs a major update.

The WinBird.

The WinBird notes that it is very

different from the other birds. Most of the other launchers don't work well with the WinBird, so you import a clear black one from Finland. As you load the WinBird into the launcher, it gives you a preview of what the flight is going to look like. It uses Bing Maps to plot its course, which is right between the BirdDroid and the iBird. The WinBird doesn't free many of the eggs, but using it was a great experience. Achievement unlocked.

The Birdroid.

Before you launch the Birdroid, the WinBird insists that you pay it \$15. OK, fine. At least you'll get to customize this bird any way you want it. It seems to be in fine shape despite a habit of

The WinBird doesn't free many of the eggs, but using it was a great experience.

gorging on desserts. The bird hops into the launcher upon recognizing your face. After launch, though, the bird fragments into 300 other birds. Relatively few of these birds wind up killing most of the others, but the ones that are left collectively knock down most of the structure and free most of the eggs. The Birddroid shares the accomplishment on Google+, which you didn't even realize you had signed up for.

The iBird.

Fortunately, it is the one time per year that a new iBird hatches. The iBird doesn't look much like a bird at all but is rather a perfect metal and glass sphere. You swipe to the left to place the iOS

bird in the launcher, a gesture that is covered under a U.S. patent. "Siri," you command, "schedule an appointment to launch the bird now." Siri replies, "The weather doesn't look good for launching birds but Wolfram Alpha has calculated the optimal distance and angle needed to apply to the launcher." After launching the iBird, it uses the exclusive Bird Fly app to make its way toward the structure. Rather than knock it down, though, it builds its own structure — a geometrically perfect birdcage of steel and glass featuring its own birdfeeder that dispenses expert technical support. The remaining eggs enter the iBird's building of their own accord after a few hours of waiting in line. 

The Case Against Google



By Mat Honan
Gizmodo

Its “don’t be evil” motto has earned Google a fair bit of trust from its users over the years, but recent changes to the way it handles search and personal information have raised questions from some and outright distrust from others. In this provocatively-titled piece, *Gizmodo*’s Mat Honan outlines how Google lost that trust, the challenges it now faces, and what it means for the company’s future.



AROUND THE WEB

The Real Leadership Lessons of Steve Jobs

By Walter Isaacson
Harvard Business Review



There’s not a lot new here for anyone that has already read Isaacson’s biography of Steve Jobs, but those looking for a condensed version now have one courtesy of the author himself, who has boiled things down to what he sees as Jobs’ key lessons.

How One Response to a Reddit Query Became a Big-Budget Flick

By Jason Fagone
Wired



Not your usual tale of making it in Hollywood, this is the story of how Reddit user James Erwin (aka Prufrock451) quickly turned a hastily written post about modern Marines battling ancient Romans into a full-fledged epic and scored a screenplay deal as a result.

The Future Of The Virtual Personal Assistant

By Norman Winarsky and Bill Mark



TechCrunch
As you may be aware, Siri had a bit of a history before it turned up in the iPhone 4S. Here, two of the people responsible for it offer a few thoughts on its success, and what may be in store for future virtual personal assistants, which they say will be even more natural.

Just the Facts. Yes, All of Them.

By Quentin Hardy
The New York Times



“Big Data” gets thrown around a lot these days, but it’s particularly apt in describing what Gilad Elbaz hopes to do with his company, Factual. In short, he wants to collect every fact about everything — Quentin Hardy details the how in this profile for *The New York Times*.

Recommended Reading

Samsung Galaxy Note 10.1

BY JOSEPH VOLPE

Mobile World Congress, a debutante ball of sorts for the wireless industry, is an oddity; set against a landscape more famous for its modernist accents and marathon nightlife than propensity for forward-facing gadgetry. Yet every year, despite this cultural contrast, mobile's best, brightest and even little known descend upon Barcelona to showcase the incoming tide of next-gen wares. It's a wonder, then, that for all the bombast and spectacle, Samsung, a titan in the cluttered Android field, chose to occupy a sizable swathe of the event's booth real estate with a glut of mid-range and less-than-fresh devices. Save for one *notable* product.

Without the halo of its still secret unicorn, the Galaxy S III, to power the brand's visibility, the company turned the spotlight on its other flagship — the Galaxy Note





10.1 — as more of a rightful successor to its O.G. Galaxy Tab of the same size, *not* the recently debuted Tab 2 (10.1). Confused? That's understandable, but this broad-screened fella's outing marks a stark transition away from the Note as smartphone, established by its 5.3-inch forebear, to a concrete series of S-Pen equipped products. Its beefier dual-core 1.4GHz CPU and 1GB RAM notwithstanding, this is, for all intents and purposes, more of a gentle update than a full-on refresh, as most of the build, screen (1,280 x 800) and camera setup remains virtually unchanged.

Solidifying the unit's place atop the industry's top-shelf mantel, is its inclusion of Google's latest ICS OS (4.0.3), slathered here in a TouchWiz skin, and the addition of two pre-installed S-Pen apps: Adobe PS Touch and Ideas. So, software improvements aside, why should this tablet, an admitted work-in-progress that's lacking the finishing touches of a final production model, occupy a space on your finely tuned

tech radar? Why should you devote a portion of your gadget-lusting heart to the promise of a killer device currently lacking any known pricing or availability? Well, to answer those questions, Samsung let us spend some brief, albeit quality time with the Note's in-development next of kin. So follow on as we explore its digitizer-optimized nooks and crannies and whet your appetites for what's to come.

Hardware

With the Note 10.1, it appears Samsung's holding fast to the axiom, "If it ain't broke, don't fix it." Except in this case (pun intended), the O.G. Tab 10.1's glossy plastic back (a veritable forensics wet dream) has now been replaced by a matte finish. So you can safely say goodbye to that unsightly trail of fingerprint sludge. That's not the only surface change separating the two, however, as its color scheme has also taken a subdued turn, ditching the bright, metallic border for a darker gunmetal grey. The dual speaker setup gets a minor placement tweak, shifting over from its former landscape orientation along the device's left and right edges to the front face surrounding the bezel. And really, that's about as cosmetically altered as this tablet gets in this generational leap.

As you'll see in our side-by-side comparison shots, all of the ports have been relegated to the exact same alignments they occupied on the Tab 10.1, with the minor addition of a covered microSD slot. Yes, this Android slate leaps past

BENCHMARK	SAMSUNG GALAXY NOTE 10.1	SAMSUNG GALAXY TAB 10.1
Quadrant ¹ (v1)	3,239	2,446
Linpack ¹ (single-thread)	50	29.8
Linpack ¹ (multi-thread)	53.1	52.6
NenaMark1 ¹ (fps)	60	43.1
NenaMark2 ¹ (fps)	43.9	20.8
Vellamo ¹	1,123	1,023
SunSpider 0.9.1 ²	2,288	2,213

Notes: ¹ higher numbers are better ² lower numbers are better

the storage handicap of its elder with the ability to expand that capacity from its 16GB, 32GB or 64GB configurations — especially handy given the library of images this multimedia tool is sure to harbor. The same dual 2-megapixel front-facing / 3-megapixel rear camera setup is present, as well as a proprietary charging dock at the device's base, with the power button, volume rocker, IR blaster and 3.5mm headphone jack sitting tidy up top.

If you've spent any time with Samsung's original 10.1 slate, you'll definitely notice the Note 10.1's slight increase in thickness and heft. It's really rather a marginal swelling, and barely noticeable at that, but we would've preferred to see this tablet maintain the slimmer profile of its ancestor. The same goes for the encasement around the screen. Whereas the Tab 10.1 offered users an all-over round-edged design, the Note 10.1 strays right where it counts, transforming those curves into hard lines. Which, if you're holding this in land-

scape, contributes to a less-pleasing in-hand fit. Again, you shouldn't be bothered much unless you're a stickler for premium ergonomic fit.

WITH THE NOTE 10.1, IT APPEARS SAMSUNG'S HOLDING FAST TO THE AXIOM, "IF IT AIN'T BROKE, DON'T FIX IT."

When Apple unleashed its new iPad to the market, several OEMs with tablets waiting in the wings were left, undoubtedly, scratching their heads. Not content to join its rivals at the 1,920 x 1,200 highwater mark, Cupertino vaulted past with its 2,048 x 1,536 Retina display and set a new standard in the process. It goes without saying the Note 10.1's display tech isn't of that caliber, nor is it of the full-HD variety, either. Again, Samsung's stuck to its guns and left the 1,280 x 800 resolution spread across its 10.1-inches unchanged. No surprises here, as colors on the screen pop with

brightness, stopping just short of being over-saturated, while viewing angles are similarly strong, although you'll have to contend with quite a bit of glare.

Performance and S-Pen

Forget about the body of this beast for a moment. Aesthetics are not what the Note 10.1's about. Samsung crafted this tablet to be the harbinger of its S-Pen line, more so than its smartphone stablemate. So, the focus should be on the software inside, not its looks or samey specs. But before we dive in to parse through the various UI embellishments that make this less of a tablet and more of a tool, we have to again stress that performance and even the array of available apps could change. Samsung's still tinkering with this guy in its labs and the final model could look and function much differently when it finally hits retailers' shelves.

With those caveats addressed, let's turn our attention to the OS. From what we've seen so far, this is a slate that looks to the past for its inspiration, but thankfully, that memory-mining doesn't involve a resurrection of Honeycomb 3.2. Android fanpersons should be pleased that Samsung's keeping its eye on the future, loading the Note 10.1 up with a skinned version of 4.0.3 — that skin being TouchWiz, naturally. It's not the pure vision of Ice Cream Sandwich set forth by Andy Rubin's team, so if you're not familiar with Sammy's range of devices, you'll be none too chuffed. For everyone else,



this UX overlay shouldn't be much of a hindrance as it retains most of ICS's functionality and flourishes, speeding along respectably and even including a handy screenshot shortcut amongst the software navigation keys.

SAMSUNG CRAFTED THIS TABLET TO BE THE HARBINGER OF ITS S-PEN LINE, MORE SO THAN ITS SMARTPHONE STABLEMATE.

Bolstered by a dual-core 1.4GHz processor and 1GB of RAM, you'd expect the Note 10.1 to dazzle with an immediacy of response and lightning-quick transitions. Unfortunately, that's not the case as it's obvious the slate could do with a heavy bit of optimization. While navigation through the various homescreens is smooth, it's the loading of applications that really highlights the tab's few rough edges. Indeed, there's a lag evident when accessing apps that could lead you to misinterpret this hesitancy as a lack of responsiveness and effect another tap. Happily, that's not



the case. The screen does successfully read your gesture, but it will take up to five seconds, in some instances, for a selected program to load.

A Note by any other name would simply be a Tab, which is why this slate comes bundled with a differentiator: the S-Pen. When Samsung first unveiled this tablet at MWC, it also outed an update to its digitizer pen tech. The stylus shown off at the company's booth simplifies workflow by adding an eraser function to the bottom end — a feature easily enacted by a flip of the pen — sidestepping the need to access the in-app menu. We weren't able to procure that particular S-Pen from Samsung, so we had to make do with a basic one borrowed from the Galaxy Note and sheathed in a luxe holder. While that adds a bit of girth and

protection, transforming the S-Pen into a proper, elegant and easy-to-grip pen, the inclusion of a function button close to the tip can prove to be somewhat irksome. Truly, we wrestled with settling on an acceptable position so as to keep from accidentally triggering the screenshot function tied to that shortcut key. This nuisance can simply be avoided if you choose to forego the use of that casing.

We've already touched upon the disconnect between touch recognition and the loading of apps when using your fingertip. Switch over to the S-Pen, though, and you'll initially be convinced the problem has worsened. That's simply not the case, however, as the accurate use of the S-Pen requires careful attention and a bit of readjustment on the user's part. It works best when you find its happy

medium: a tap that is neither too aggressive nor too light upon the screen. It can be a tad slippery to navigate precisely, a fact we'll revisit later, but to move the uninitiated along, Samsung's added a helpful setting to display an onscreen cursor which tracks your movements.

**A NOTE BY ANY OTHER NAME
WOULD SIMPLY BE A TAB,
WHICH IS WHY THIS SLATE
COMES BUNDLED WITH A
DIFFERENTIATOR: THE S-PEN.**

Bear in mind this isn't a review of the full-fledged product. That in-depth feature will hopefully come at a later date when Samsung manages to iron out the kinks and get this tablet to the market. So, in the interest of giving you a glimpse of the raw processing power fueling this iteration, we've done a side-by-side with the Tab 10.1 it's meant to outdo. Take a look at the chart below and you'll see the Note 10.1 benefits from that extra 400MHz, overtaking its aging and lower clocked predecessor in nearly every benchmark we tested. No doubt that ICS OS it runs had a hand in this performance leap, though Sammy's O.G. tab did take home the crown, albeit barely, in SunSpider 0.9.1 results. Given time for additional optimization and we're sure that final production model will see even further appreciable gains.

Software and S-Pen Apps

Remember that old iPhone meme, "You're holding it wrong." Well, the

same could apply here if we swap out "holding" for "touching." The Note 10.1 is, after all, a digitizer and its various applications, even the non-stylus specific ones, all make ample use of the S-Pen. That includes Google's suite of apps, as well as any third party software (none of which are final) that Samsung chooses to pre-install, like Polaris Office, Zinio, Photo Editor and *Crayon Physics Deluxe*. Will you want to keep that stylus in hand throughout your use? The answer to that very question all depends on the mode you intend to slip into: creativity or productivity. For applications associated with the latter category, it'll be hard to resist the temptation to switch to your own digits, as depressing keys on the software keyboard or even relying on the inbuilt handwriting recognition software takes too long; makes the entire process inefficient. You won't encounter that issue if you happen to be simply selecting apps, links or menu settings, but for the purpose of text input, it's inadvisable. Don't take this as a con, though, because the S-Pen does have lovely benefits — you just have to know where and when to make use of them.

Google's Play market doesn't yet offer users the ability to cut through the clutter and isolate the scattering of stylus-friendly apps, but Samsung's own storefront does. Separated by categories, prospective Note 10.1 owners will need to merely highlight 'S Choice' to browse the available selection of S-Pen compatible applications. Using this curated Android market, we were able to download a handful of com-



plementary programs, like Animating Touch and Hello Color Pencil.

S Memo

If you own the Galaxy Note, then this app should seem familiar. As one of the few programs Samsung's created to take full advantage of the S-Pen, you'll find most of your note-taking and handwriting recognition needs will be met here. After selecting one of a handful of themes (ranging from a memo to musical notation paper to graph paper), users are then given the option to choose from one of three function modes — formula, shape or text match — which all perform exactly as they sound. Select the math option and your screen will be divided into two, with the lower portion dedicated to input and the above a near final preview of your entry. Scrawl in an equation and the software will do its best to discern it, translating your arithmetic up above and presenting you with the option to go ahead and calculate. It's pretty simple stuff and, more often than not, the software was able to accurately determine which numbers and symbols we'd written down.

The shape function has a less obvious utility and was cause for a bit of trial



and error to work properly. It won't correct your attempts at anthropomorphic sketches, but if the composition of basic circles and squares poses you great difficulty, this neat mode will redraw them for you in proper alignment.

THE REAL MEAT AND POTATOES OF S-MEMO IS ITS PLAIN 'OL ABILITY TO RENDER YOUR ILLEGIBLE PRINT INTO READABLE TYPE — A FEAT IT PULLS OFF WITH AN ALMOST COMPLETE SENSE OF EASE.

Sure enough, the addition of those two modes are an added bonus, giving users something to do with that S-Pen, but they're also superfluous at best. The real meat and potatoes of S-Memo is its plain 'ol ability to render your illegible print into readable type — a feat it pulls off with an almost complete sense of ease. Trigger this function and an onscreen gesture guide will immediately fill up the screen. Overall, these shortcuts are a breeze to accomplish, with a swipe back used for deletion, swipe to the right or down used for spacing, as well as the ability to correct misspell-

ings by overwriting on the faulty letter.

Get down to the business of actually entering text and, at first, you'll feel as though you've re-entered primary school, adapting your print from its idiosyncratic scribble to the more staid and traditional forms of our alphabet. Once over that learning curve, however, your experience with the handwriting software should lend itself to a measured pace. Yes, it's necessary to intermittently interrupt your writing to manually enter the approved text into the appropriate field above, but that's really the only speed bump in an otherwise smooth ride. When you've finished whatever it is you set out to do with the app, you can then share it to various social media, export, print or merely save for a rainy day.

S Note

Abandon all hope for variation, ye who enter this app — redundancy abounds. At first glance, S Note is nothing other than S Memo dressed up with templates as opposed to themes. Does this make any difference? If you happen to be in a cutesy mood and want to mock up a postcard with an image from your own gallery or even a magazine page with a video embed, then it's a resounding yes. Otherwise, it's more of an amusing diversion that makes use of the S-Pen than creative pro tool. For the sake of a cohesive user experience, Samsung could've simply rolled this app's feature set into S Memo, making for a more robust, stylus-friendly feature set.

Adobe Ideas

Ideas is the first of the two Adobe apps that come pre-installed on the Note 10.1: a Photoshop-like application that significantly lowers the bar so non-creative types can doodle and play. Really, it's a dumbed-down version of PS Touch, offering a scaled down set of editing functions that amounts to nothing more than amateur hour for aspiring graphic designers. Pulling from a selection of images (be they pre-loaded, imported or snapped with the dual camera setup), users can add their creations in layers, adjusting brush size, opacity and color as they go. Professional types will likely want to steer clear of Ideas in favor of the fuller companion app. For the everyman, however, it's a welcome addition that could serve to gently ease newbies into the complex world of image manipulation that awaits them in PS Touch.

PS Touch

Have a Wacom tablet at home? Then you'll be pleased to meet PS Touch — the Note 10.1's undisputed S-Pen gem. Creative pros will find comfort in this tablet adaptation of Adobe's über-popular Photoshop program, as most of the features, though laid out differently, remain intact. While it's not a complete replacement for a desktop graphics workstation, the app does give pros some flexibility, letting them create on-the-go much the same way they'd do in the office or at home. While you wouldn't want to rely solely on this application for the majority of your workflow, it could come

handy in pinch, offering up an outpost for moments of sudden inspiration outside of your traditional workspace.


To its credit, Adobe's tossed in a variety of tutorials to walk users, both new and experienced, through the app's many functions. It's not a completely intuitive walkthrough, as the correct implementation of a step won't prompt you to move on; you'll have to be a bit self-reliant and trust in your own skill set for that. Follow through and you'll be rewarded with knowledge of PS Touch's image manipulation capabilities that can then be applied to your own projects. That's not to say you'll successfully complete every tutorial with precision — or at all, for that matter. Some of the features require a deft hand and deep understanding of the more advanced principles of Photoshop. Without that prior experience, users will likely skim the surface or default to the simpler and less intimidating Ideas.

Wrap-Up

Samsung's still chiseling this S-Pen flagship into final form, so we'll avoid passing a verdict on its pros and cons. What we can speak to is its usefulness as more than a standard tablet, as a tool for creative professionals looking to extend their workflow beyond the confines of the traditional work environment. Seen in that vein, there's a strong argument for designers to hop on board and claim the Note 10.1 as their own. With an array of



apps that lend themselves well to sketching, annotating and moderate-to-heavy image editing, pro users should find this a satisfying on-the-go crutch. Armed with the S-Pen and a generous 10.1-inches, those moments of sudden inspiration won't go wasted, as you'll be capable of whipping this slate out and translating those fleeting moments of genius into visible and safely contained ideas.

Move outside of this user base, however, and the tablet becomes more of a novelty, with its true power left untapped by the lowered demands of the casual consumer. It makes sense, then, why Samsung chose to branch out the category with a stable of slates dedicated to the precision of a stylus and general productivity to its Tab series. We can't say for sure if this is a must-have device — that all hinges upon its unknown price point and production-ready performance — but as it stands, the Note 10.1's future looks promising. 

Zach Honig contributed to this report.

Joseph Volpe is ambiguously ethnic. He is also an Associate Editor at Engadget.



SMS Audio SYNC by 50 Wireless Headphones

SMS Audio's Sync by 50 headphones are an intriguing wired / wireless hybrid, but they aren't worth the price as-is. Here's hoping for gen two.

BY JOE POLLICINO

Ah, celebrity-endorsed headphones — whether it's Beats by Dre or Soul by Ludacris, you've always gotta wonder whether their actual sound-reproduction chops will match up with the steep price tags and fashion-focused designs. Oftentimes, shocker of shockers, the answer is a resounding "no." One of the newest entrants into this game is SYNC by 50, stemming from a long collaboration between SMS Audio and




none other than Curtis James Jackson III — 50 Cent, of course. Unlike the partners' \$250 Street offering, these headphones have the unique selling point of offering both wireless *and* wired operation, a convenience for which you'll pay a staggering \$400. Although they don't offer active noise-cancellation like competing models, these headphones are banking on Klear's tried-and-true wireless audio technology, which touts 16-bit CD-quality resolution. We spent several weeks testing these spendy sound-blasters, so continue on to our full review to learn whether they live up to the hype or could us to a second trip back to the studio for remastering.

Hardware



As far as headphones go, the SYNCs arrive in a particularly massive package. During our unboxing, we were greeted by a semi-hardshell black zippered case with blue trim. Interestingly, it can stand upright thanks to four plastic feet, and the top section is conveniently molded into

the shape of a handle. Unzipping the case gave us access to the real star of the show, the headphones and their unpleasantly odorous materials. Thankfully, a few days of use quelled the odd stench. Nestled in between the 'phones, you'll find a wireless 2.4GHz Klear 3.5mm audio dongle, along with a USB wall adapter for charging. On the opposite side of the case there's a mesh pocket, which holds a micro-fiber cloth, a blue 3.5mm audio cable with a one-button inline remote / mic, USB-to-mini-USB cable, an airliner adapter and some product booklets.

The basic design elements of the SYNCs unsurprisingly nod to other established brands on the market. Remove the buttons and chromed plastic trim, and you have a near replica of the Beats Studios. Then there's the blue-backlit "S" on each earcup that's similar to Signeo's Soul by Ludacris cans. That said, the folks over at SMS Audio have crafted a robust offering with some notably differentiating design choices. While the plastic doesn't look or feel very high-



The build quality is much like what we've come to expect from Samsung's mobile phones: cheap-feeling plastic that's actually rather durable.




end, it's ridiculously flexible, which bodes well for their durability over time. Absent are any folding hinges, a design choice that SMS claims to offer more rigidity (albeit at the expense of portability). We bent and twisted the headphones many ways and were left with nary a sign of any stress. The headrail adjusters also click smoothly along their tracks and stayed locked in position while we were out and about. Overall, the build quality is much like what we've come to expect from Samsung's mobile phones: cheap-feeling plastic that's actually rather durable.

Speaking of the trim and finish, you'll have a choice between the white seen here or black, both featuring light blue and chrome trimmings. Although we normally love gizmos that get the unicorn color treatment, our review sample's ear cushions had blue stains from the carry

case and quickly began collecting grime after only a few weeks of use. If you're the type who obsesses over keeping your gadgets pristine, we'd advise picking it up in black to save yourself the headache.

Let's move on to specifics. On the left earcup's side, you'll find a power button and another for bass boost / SYNCing (more on that later), while its underside houses a 3.5mm cable input and micro-USB port for charging. Along the right, there's a cluster of playback controls: advance, rewind and volume. Each button is crowned with raised markings that match up with these symbols (say, volume up), making them easy to find just by feeling around. The buttons make a satisfying click, too, though there's no audio feedback confirming you've just adjusted a setting. We should also point out that all of the controls won't work out of the box (details later).

The included cable plugs snugly into the headphones and its right-angle jack on the opposite end works well if you plan on keeping your PMP in your pocket. We're happy to report that cable noise is pretty minimal, and that the single control-button / mic work across a range of Android and iOS devices. Aside from the blue color, though, it's essentially standard fare and we would have liked for another cable or two to be included at this price — just as you'll find with almost any pair of headphones like this. By the way, if you're hoping for a remote with volume controls, like Control-Talk for iOS devices, nothing of the sort is currently available.



Of course, the headphones are wireless, so let's discuss the dongle for a moment. Starting with build quality, the consistency of the materials is more of the same; however, it ends up seeming flimsier once you notice the wiggly connection at the audio jack. Other than this minor niggle, we didn't run into any actual problems with its materials. On its top is a power slider, along with a micro-USB port for charging. Using its 2.4GHz wireless signal, the dongle can work up to 50 feet from the headphones, but in practice we rarely made it past 20 or so before our audio would begin to cut out. Oddly enough, the dongle only enables independent volume control with the headphones, meaning those forward and rewind buttons will remain useless. You will have some options to enable these with add-ons, which we'll detail further below. On a more positive note, you can connect up to four of the headphones to one wireless dongle. We're not exactly sure of the appeal for this beyond speakers, but if your buddies happen to own their own pair you could have an odd sort of listening party, we guess.

Notably, pairing the headphones and transmitter is very simple, as their very name would suggest. After holding down the SYNC button on the dongle for three seconds, you'll do the same for the headphones. While in progress, the LEDs blink rapidly, eventually matching up at a slower pace to let you know that everything got... *synced*. SMS notes the process takes about 20 seconds,

which sounds about right, by our clock. If you're worried about disturbing others with those flashing lights, the blinkers turn off if you hold the rewind button down for three seconds. Take note, though: as far as we've surmised, the dongle's blinker will remain on unless powered down. Sigh.

The headphones will work passively with the included cable, but as a fail-safe to keep the batteries from draining by accident, they'll power off if no sound gets transferred for about a minute. Sadly, there's no way to bypass this feature, which turned out to be a nuisance since we constantly needed to repair the devices while using the headphones out and about throughout the day. Speaking of battery life, we were able to get about 16 and a half hours of continuous use (SMS rates them for 17), but annoyingly, the dongle only lasts a bit more than half of that. Frustratingly enough, although SMS had the foresight to include a USB wall charger, it has just a single input. This means you'll have to charge one unit at a time unless you want to hook one into, say, your computer. So, you might wonder, why not just opt for Bluetooth, sparing the need for a dongle? One of the major selling points on these cans is Klear — this wireless technology offers 16-bit CD-quality lossless audio. Despite the claimed high-resolution, these are not aimed at audiophiles, per se, as the headphones expectedly feature a pre-tuned EQ. (We'll save the details for the sound section later on.)



Comfort

When it comes to fit, the SYNCs perform well in the comfort department. The earcups do have an ample amount of padding, but we would've appreciated a secondary set of cloth pads to avoid swampy ears on hotter days. Sadly, the drivers aren't set very deep, which causes the headphones to fit a bit like supra-aurals despite the over-ear design. Similar to the Klipsch Mode M40s, this means a hard driver plate may rest against your ears, negating the affects of the memory-foam padding — we certainly experienced some mild cartilage cramping. Still, the headphones are very lightweight, with a loose fit that's just snug enough for them to stay on your head without any serious clamping. Although the cans will remain on your head, that doesn't mean they'll stay in place. The headband is slippery, causing the headphones to slide forward whenever you're walking about. These stand as small quibbles on their own, but we'd be remiss if we

didn't point out that many headphones costing far less come out ahead in many of these real-world tests.

Sound

Alright, let's get to the key part of any headphone review: audio quality. To begin, it's worth noting that while the headphones are loosely marketed as noise-cancelling, they are actually of the passive noise-isolating variety — if that. The headphones do an abysmal job of blocking out external sound, and in some cases the world felt louder with them on, as if we were in a tunnel. It's disappointing given how large the headphones are, but we imagine the comfortably care-free fit isn't exactly conducive to a pristine listening experience

As long as we were in a quiet environment, we generally liked the headphones' voicing, albeit with some caveats. As you'd expect, they're bass-pushers first and foremost, but they're fairly big sounding closed-back cans compared to other high-end options we've tested.

We found ourselves engulfed by the spacious soundstage and clarity that the 50mm drivers provided. It's not all good, though. We wouldn't say the mids and highs are tinny, but without EQ guitars always ended up lacking thickness. It becomes especially noticeable once a full band kicks in, as very often the guitars end up fighting with the cymbals for sonic real estate. The lower end is exceptionally smooth, but we did perceive a lack of presence.

The headphones do an abysmal job of blocking out external noise, and in some cases the world sounded louder with them on.

For example, with Jimmy Eat World, the bass guitar loses some of its usual top-end bite, and the initial whack of a bass drum winds up buried under its thump. On a related note, you'll be able to use a bass booster, dubbed Thumpp, whenever you use the cans wirelessly. The processing gets done using Klear's tech, which is a partial shame since cord-lovers are left out of the fun. Sadly, bass heads' might want to sit down for this next note — the

bass boost consistently did more harm than good, usually causing some mild, but audible, distortion. Despite the headphones' inherent bass kick, that lacking presence meant that, with genre's like dubstep and hip hop, the low-end was more audible, albeit compressed. When it comes to running these wireless, nothing sounded drastically different to our ears, which is a good thing considering its supposed to supply lossless quality. Overall, the headphones sound pretty good, but they'll likely seem a bit airy sounding. That said, when you then realize you paid \$400 for the headphones, they're considerably less impressive — especially up against the thickly voiced M40s. On a positive note, the cable's inline microphone faithfully carried our voice during phone calls without any complaints from those on the other line.


Optional Accessories

As we mentioned earlier, all of the controls on the SYNCs don't work out of the box with any device. While there isn't a magic accessory to quell this curious design choice, SMS would be happy to offer you one of two more dongles for an extra fee. Computer users will benefit from SMS' Klear USB dongle, which, unlike the audio jack-purposed one included, allows all of the headphones' controls to work. While we're glad the option is there, the dongle is huge compared to the average flash drive and it costs a whopping \$80 dollars.

According to the included manual, a 30-pin iDevice version of the headphone

jack dongle is also on the way. There's no specific word on a price or release date, but it'll likely set you back another 50 dollars or so. Of course, this dongle would enable the playback controls, which remain functionless otherwise.

Wrap-Up

When it comes down to it, SMS Audio's SYNC by 50 wireless headphones are simply too expensive for what you get. Sure, they're stylish with a decent fit and good sound, but the experience is just *messy*. The 16-bit lossless audio via Klear wireless is an intriguing prospect, but fussing with dongles is always a hard pill to swallow. Furthermore, the whole implementation feels half-baked once you factor in the mixed compatibility between features. Thumpp bass boost will only work with the dongles due to the sound processing. You only have the option for a microphone when using a cable. The one dongle that does make all of the headphones' on-board features work isn't included in this already exceptionally expensive package. The list goes on, but you've likely gotten the gist by now. All that said, we're always suckers for gadgets stuffed with bells and whistles, so here's to a more seamless experience — and some more reasonable pricing — in version 2.0. That is, if there ever is a second generation. 

Joe's functionally useless without his glasses — a fact you really shouldn't disclose to any enemies.



BOTTOM LINE

SMS Audio SYNC by 50 Wireless Headphones

\$400

PROS

- Wide soundstage, good clarity
- Lightweight fit
- Dependable wireless connection

CONS

- Toss-up functionality
- Poor noise-isolation
- Middling bass-boost performance

SMS Audio's Sync by 50 headphones are an intriguing wired / wireless hybrid, but they aren't worth the price as-is. Here's hoping for gen two.



Samsung Series 5 Ultrabook, 14-inch

This 14-inch Ultrabook doesn't justify its heft with long battery life or exceptional performance.

BY DANA WOLLMAN

Pop quiz: which of the following is being marketed as an Ultrabook? Behind door number one, we have a 2.5-pound wisp of a laptop with a 13-inch screen, Core i5 CPU and 128GB SSD. Next up, there's contestant number two, a 3.94-pound notebook with a 14-inch display, 500GB hard drive, and DVD burner. If you guessed the latter, well, congrats on reading that headline correctly, though we'd understand if you said that first option *sounds* like the Ultrabook.

Indeed, Samsung's Series 5 Ultrabooks are a tad plumper than most, and look especially oversized next to the Series 9, that *other* ultraportable we've been describing. But it's not just Samsung using loose parameters to decide what counts as an Ultrabook. If Intel's own forecast is correct, half of the 75-plus models that go on sale this year will have 14- or 15-inch screens, and we've already seen a sampling of contenders from HP, Acer and Toshiba. The idea, say PC makers, is to lure in a more old-fashioned kind of customer, shoppers who aren't quite ready to ditch their DVD drive, and who aren't keen on stepping down to a too-small screen. At the same time, these laptops are thinner and lighter than similarly sized laptops, last longer on a charge and hold the promise of faster performance — three reasons manufacturers can get away with charging more than they would for a plain 'ol laptop.

In a nutshell, that's the value proposition behind the 14-inch Series 5, which costs \$949 and comes bearing a Core i5 processor, 500GB hybrid hard drive and, of course, a DVD burner. But do the benefits of a bigger Ultrabook outweigh the annoyances? And how does it compare to regular 14-inch laptops that *aren't* classified as ultraportables (and that don't command the Ultrabook tax)? Let's find out.

Look and Feel

The curious (and absolutely intentional) thing about Intel's Ultrabook marketing blitz is that it's forced us to adjust the way we talk about laptop prices. About value. On what planet is a \$949 laptop a *budget* item? One where it's touted as an Ultrabook, and other so-called Ultrabooks run in excess of \$1,400, that's where. But in the real world (one where "Ultrabook" is just a fancy word for a lightweight laptop)



\$949 is hardly chump change, especially when \$550 can buy you a system with a Core i3 processor, 4GB of RAM, a 500GB hard drive, six-cell battery and a (partly) metal design.

So let's look at the Series 5 for what it is: an inexpensive Ultrabook, and a mid-range laptop. Though its design is inoffensive and tasteful, the build quality and attention to detail aren't any better than what other PC makers are offering for the same price (or less, even). With the exception of the plastic bottom, the laptop is fashioned completely out of gray aluminum — a material that does an admirable job of resisting fingerprints, but chips easily around those sharp edges. If you look closely, it has roughly the same tapered shape as the impossibly thin Series 9, but it's tougher to appreciate on a machine that's not .58 inches thick. Other than Samsung's logo and a super thin metal band ringing the trackpad, you won't find any bold embellishments here, as on the \$800 Dell XPS 14z, though depending on your tastes that could be a very good thing indeed.

There's no getting around this next part: the 14-inch Series 5 is big as far as Ultrabooks go: heavy, and flush with ports. Granted, we'll soon see many more bigger-screened Ultrabooks, and despite having an optical drive, it manages to weigh less than the DVD-less HP Envy 14 Spectre (3.94 pounds versus 3.97). At least Samsung made room for lots of sockets in that .82-inch-thick (20.8mm) frame. Starting on the right edge, there's the tray-loading optical drive, along with

a USB 2.0 port, Kensington lock slot and 4-in-1 memory card reader. Move around to the left and you'll find two USB 3.0 ports — something no other Ultrabook, save the Spectre, can lay claim to. There's also an HDMI socket, Ethernet jack, combined headphone / mic port and — who saw this coming? — a VGA port! We can actually *hear* a few sarcastic snores coming from the peanut gallery, but for those of you with an aging projector lying around, well, you're in luck.

Before we talk about build quality, this might be a good time to offer a quick primer on Samsung's naming conventions for laptops. In ascending order of niceness, there's the Series 3, 5, 7 and 9. You don't have to be a math genius to know that leaves this \$949 laptop in the second-to-lowest-end category, suggesting it was intended as a mid-range machine. Accordingly, the build quality is totally fine, though hardly top-notch either. The lid wobbles a bit when you set the machine down, and if you type vigorously enough. We also noticed some flex in the palm rest, but only when we held it with one hand, which wasn't often. On the plus side, though, Samsung has been prideful about putting its TV know-how to good use, which means even on a humdrum machine like this you'll enjoy a bright, unexpectedly matte display. (Much more on that later, of course.)

Keyboard and Trackpad

Like so many other Ultrabooks, the Series 5 is studded with shallow keys. (Come to think of it, we can't remem-

ber *ever* seeing a Samsung-made laptop with a cushy keyboard, but that's neither here nor there.) Fortunately, though, these are fairly easy to type on. The keys have a pleasant, ever-so slightly textured finish, and hold their own even under the pressure of furious typing. You might notice, though, that the wobbly screen starts to jiggle if you really start pounding the keys.

When we first settled in with the Series 5, we worried the shrunken keys (Tab, Caps Lock, etc.) would pose a distrac-

tion, but we ultimately typed much of this review on them without fuss. The arrow keys are small, though — smaller than you might expect on a laptop this size. If you're the kind of person who prefers arrows for highlighting text, you might fumble around at first as your fingers try to find them; with practice, you should be able to tap them without pausing to look.

One thing you may or may not miss is a backlit keyboard. Without any dimly lit overnight flights to work through,

we can't say we missed that glow, and knowing the battery isn't as robust as we would have liked (spoiler!) we're happy not to strain it further. Still, similarly priced Ultrabooks like the Dell XPS 13 and HP Folio have this, and it would have gone a long way in livening up the Series 5's otherwise staid design.

Here's a frequently asked question we get here at Engadget: is there a Windows trackpad you *do* like? Why yes, actually, but funnily enough, they all combine a pad with good old-fashioned touch but-

tons. (In other words, we've had quite enough of those seamless clickpads with flaky gestures and poor palm rejection.) Maybe that's why we're fond of the Series 5's touchpad, which offers a large, low-friction surface for smooth, precise tracking. Powered by Elan, it capably handles both two-finger scrolling and pinch-to-zoom, allowing you to carefully scale text without jumping from fine print to size 40 font. As you're poking around, you might notice some stuttering as you magnify web pages, but those





transitions should look smoother when you're examining photos and PDFs.

As for those touch buttons, they're tactile and generously sized (+2), though the buttons make a rather loud *click* every time you press them (-.5).

Display and Sound

After spending a week with the HP Spectre and its 1600 x 900 display, the Series 5's 1366 x 768 pixel count should feel like a step down. And to some extent, it is. Then again, we're talking about a machine that costs \$450 less. Not to mention, pretty much every sub-\$1,000 Ultrabook we know of offers the same middle-of-the-road resolution. If that's a deal-breaker for you, we'll direct you toward our Spectre, MacBook Air and ASUS Zenbook UX31 reviews with the usual caveat that a crisp display doesn't totally make up for flaws like a stiff

clickpad either.

Resolution aside, it still beats the other 1366 x 768 displays you'll find on other Ultrabooks, especially ones in this price category. Specifically, it's one of Samsung's SuperBright screens, which means it has 300 nits of brightness (not to be confused with the 450-nit SuperBright *Plus* panel inside the Series 9). As luck would have it, it has a matte finish, too, though somehow the viewing angles are still fairly narrow. The screen still gets washed out when you dip it forward or watch from oblique angles, but at least that matte coating cut down on glare from overhead lights and nearby windows. To wit, it's nice that you can't really see the vertical lines in the LCD unless you lean close. That's more than we can say about that eye-popping Radiance panel on the Spectre.

The speaker strip stretching across

BENCHMARK	PCMARK VANTAGE	3DMARK06
14-inch Samsung Series 5 Ultrabook (1.6GHz Core i5-2467M, Intel HD Graphics 3000)	6908	2,618
HP Envy 14 Spectre (1.6GHz Core i5-2467M, Intel HD Graphics 3000)	9,335	3,468
Dell XPS 14z (2.8GHz Core i7-2640M, Intel HD Graphics 3000 / NVIDIA GeForce GT520M 1GB)	7,982	5,414
Dell Inspiron 14z (2.3GHz Core i5-2410M, Intel HD Graphics 3000)	6,177	4,079
Dell XPS 13 (1.6GHz Core i5-2467M, Intel HD Graphics 3000)	N/A	4,130
HP Folio 13 (1.6GHz Core i5-2467M, Intel HD Graphics 3000)	6,701	3,387
Toshiba Portege Z835 (1.4GHz Core i3-2367M, Intel HD Graphics 3000)	5,894	3,601
Lenovo IdeaPad U300s (1.8GHz Core i7-2677M, Intel HD Graphics 3000)	9,939	3,651
ASUS Zenbook UX31 (1.7GHz Core i5-2557M, Intel HD Graphics 3000)	10,508	4,209
Acer Aspire S3 (1.6GHz Core i5-2467M, Intel HD Graphics 3000)	5,367	3,221
13-inch, 2011 MacBook Air (1.7GHz Core i5-2557M, Intel HD Graphics 3000)	9,484	4,223
2011 Samsung Series 9 (1.7GHz Core i5-2537M, Intel HD Graphics 3000)	7,582	2,240

Notes: The higher the score the better.


the keyboard deck pushes out sound that manages not to be too tinny — at least, for pop and rock songs. The middling audio quality is most obvious with rap and other bass-heavy tracks, where low notes get lost in the shuffle of higher-pitched synthesizers.

Like an increasing number of other laptops, the Series 5 makes use of Intel's Wireless Display technology, which you can use to mirror your desktop on an HDTV or external monitor. In addition to blowing up your desktop

on a bigger screen, you can also stream 1080p movies, a step up from the 720p resolution cap imposed by early WiDi laptops. To get a feel for how it works, we suggest you read our Toshiba Satellite E305 review. Suffice to say, though, the streaming tends to be fluid, and the third-party adapters are usually a cinch to set up.

Performance

With one important exception, the Series 5 has the same innards as the Dell XPS



13 and other Ultrabooks we've tested recently: a 1.6GHz Core i5-2467M CPU, 4GB of RAM and integrated HD 3000 graphics. Wash, rinse, repeat, right? Not exactly. The difference is that this guy runs on a 500GB 5,400RPM drive with 16GB of flash memory — double the 8GB used in Samsung's higher-end Series 7 Chronos. Though it's not without drawbacks (more on that in a moment), it does exactly what it promises to do: accelerate the start-up process, cut resume times and launch apps quickly. The machine boots in a brisk 21 seconds, at which point you can immediately start clicking things — no waiting around for Windows to finish loading. It also wakes from sleep in less than two seconds, as any good Ultrabook should. And despite its lack of an SSD, it notched a similar score in PCMark Vantage as the \$900 Folio 13, which does have a solid-state drive.

What's more, the Series 5 does a slightly better job dissipating heat than either the XPS 13 or the Spectre, both of which we've tested recently. After five hours of working in Chrome, we could feel some lukewarm air coming through the vents, but it was still cooler than either of those two other machines would have been after some extended web surfing.


Still, when it comes to disk performance, it's clear this hybrid drive is no substitute for an SSD. Using the benchmark ATTO as our guide, we saw peak read and write speeds of 111 MB/s in each category. On the one hand, that's better than the 80 MB/s reads and 75

MB/s writes you'd get from the hybrid HDD inside of the \$800 Acer Aspire S3, but it's no match for a proper solid-state drive. Even the Folio 13 can hit 232 MB/s reads and 192 MB/s writes, and that's hardly even the fastest SSD the current crop of Ultrabooks have to offer (that would be the Zenbook UX31's).

Without discrete graphics or an SSD, its performance trails beefier laptops and smaller Ultrabooks.

With very few exceptions, the Ultrabooks we test limp along on Intel HD 3000 graphics, so if gaming is a passion of yours, look elsewhere. In this case, the Series 5's average score on the benchmark 3DMark06 is exceptionally low, though in practice gaming isn't much smoother on better-scoring machines like the pricey Spectre. In *The Sims*, it's a difference between 62 frames per second and 65; in *Call of Duty*, it means even with 1024 x 768 resolution you're sputtering along at 10fps, as opposed to 15fps. Either way, Intel's graphics solution has yet to fail us when it comes to simple things like zooming in on and lightly editing photos.

It's worth noting, though, that these performance comparisons are artificial



in a way: so far, we've only been pitting the Series 5 against other so-called Ultrabooks, with low-voltage processors and integrated graphics. But this laptop is large enough that it might also make sense to stack it up against a "full-fledged" 14-inch laptop — you know, one that's a little too muscular to be called an Ultrabook. Do that and you'll see something like the XPS 14z comes out ahead (so does the lower-end Inspiron 14z, by some metrics). Of course, this isn't a perfect apples-to-apples comparison, since the XPS 14z we reviewed is worth hundreds of dollars more. The point is, you could buy a machine like that and pay to add discrete graphics and extra RAM if fine-tuning the performance was that important to you. The 14-inch Series 5 Ultrabook comes in just one configuration, though intrepid types can replace the RAM and drive (but not the battery) on their own.

Battery Life

You'd think that a relatively hefty Ultrabook would yield more robust battery life, right? In fact, that goes for phones and tablets, too: most of us can handle a few extra ounces (or pounds, as it were), but there ought to be some sort of benefit, like a larger battery, or maybe an extra helping of ports. In this case, the 14-inch Series 5 brings an optical drive, but nothing in the way of extended longevity. In our standard battery test (WiFi on, movie looping off the disk, brightness fixed at 65 percent), it managed just a hair over five hours. Sure, that's

TABLET	BATTERY LIFE
14-inch Samsung Series 5 Ultrabook	5:06
Dell Inspiron 14z	6:37
HP Folio 13	6:08
Toshiba Portege Z835	5:49
ASUS Zenbook UX31	5:41
13-inch, 2011 MacBook Air	5:32 (Mac OS X) 4:12 (Windows)
HP Envy 14 Spectre	5:30
Lenovo IdeaPad U300s	5:08
Dell XPS 13	4:58
Dell 14z	4:54
Samsung Series 9 (2011)	4:20
Acer Aspire S3	4:11

longer than you'd get with the even-heavier Dell XPS 14z, but it falls short of most every other Ultrabook we've tested. Give up the optical drive and you should enjoy an extra hour of runtime with the HP Folio 13. Even if you do need a DVD burner, the Dell Inspiron 14z (\$550 and up) lasts more than six and a half hours with a six-cell battery.

On the plus side, we noticed the laptop sips *very* little power while asleep, so you could theoretically go days without charging it if you only needed to respond to emails in short bursts.

Software

The apps pre-installed here are a mostly



benign bunch, including CyberLink Media Suite, MediaShow, Power2Go, PowerDirector and the YouCam webcam app; Skype 4.2; Norton Online Backup; Microsoft Starter 2010 (natch); and Windows Live Essentials 2011.

The machine also comes loaded with a 60-day trial of Norton Internet Security 2012. If anything, we'd normally complain about annoying pop-ups and dialog boxes entreating us to purchase the product, but in this case we also ran afoul of the FileInsight feature, which wouldn't let us download a .exe file from box.net that we've successfully installed on every PC and Mac we've tested.

Configuration Options and Warranty

None! The 14-inch Series 5 Ultrabook is available in one configuration, the \$949 number we've been describing in detail. If you can do without the optical drive, Sammy's also selling a 13-inch model,


available in two flavors. Both have the same 1.6GHz Core i5-2467M processor as the 14-inch version, along with 4GB of RAM, a 300-nit, 1366 x 768 display and integrated Intel graphics. The lower-end \$900 version also has the same 500GB hybrid drive as the 14-incher, though the \$1,100 model steps up to a 128GB SSD, putting it in line with similarly priced competitors. At 3.24 pounds, it's heavier than most 13-inch Ultrabooks, though it's still a shade lighter than the 3.3-pound Folio 13.

The Competition

So Samsung's marketing this 14-inch laptop with an optical drive as an Ultrabook. Given that positioning, then, we'll kick off your comparison shopping with a brief nod to other Ultrabooks. To recap this review thus far, its display is better than most machines you'll find in this price range, though the performance isn't necessarily faster, and the battery life is markedly shorter. The selection of ports is unrivaled, save for the Spectre, which has two USB 3.0 ports (but no VGA socket or optical drive, neither of which you'll necessarily miss). As for design, we tend to think the Dell XPS 13 and arguably even the Folio 13 are better looking than this, though the Series 5 still wins when it comes to having both a comfortable keyboard and trackpad. All told, the HP Folio 13 is still our favorite of the lower-cost Ultrabooks — it's not perfect, but it still offers the best combination of

performance, battery life, ergonomics and tasteful design.

Typically with Ultrabook reviews, we only mention other ultraportables in this comparison shopping section because, well, most machines in that size and weight class are Ultrabooks. With the 14-inch Series 5, though, the line between Intel-sanctioned Ultrabooks and regular laptops is blurrier. Given the larger screen size, its relative heft and that optical drive, why not compare it to thin-and-light notebooks that are just a smidge too heavy to be called Ultrabooks?



With the 14-inch Series 5 the line between Intel-sanctioned Ultrabooks and regular laptops is blurrier.

Indeed, the field of 14-inchers is large, and we haven't tested each and every one, but we do want to share a few highlights. For starters, the Dell XPS 14z we've been name-dropping throughout this review now starts at \$800 with a more polished (if somewhat gaudier) all-metal design, a comfortable keyboard-and-trackpad combo and an optional discrete GPU (not that the graphics performance is that impressive). Keep in mind, though, that it's not as compact as the Series 5, at

4.36 pounds and .9 inches thick. The little brother to that, the Inspiron 14z (\$550 and up) offers solid performance and exceptionally long battery life, though we weren't as fond of the trackpad.

Aside from the Spectre, HP doesn't offer many 14-inch laptops, and the one it does — the g4t — is decidedly low-end, starting at \$480 with a Core i3 CPU, 4GB of RAM and a 500GB hard drive. Not bad specs for everyday computing, but you'd also have to walk away from all the speed, longevity and portability that Ultrabooks are promising. Here, you'd have to make do with a 4.68-pound system and battery life rated for a little over four hours, which doesn't bode well for real-world use. This go-round, we suggest leapfrogging HP and focusing on what other manufacturers have to offer.


Like Acer, whose lineup includes the recently announced Timeline Ultra series, which caters to precisely the same person who might be considering the Series 5: someone who can't bear to part with that optical drive, but still craves something relatively thin, light and affordable. (No word on US pricing, though we've been told in the past prices would fall in line with the company's current TimelineX offerings.) What we do know is that the 15-inch Timeline Ultra M3 is set to ship this month with NVIDIA's new 28nm Kepler graphics, making it the first Ultra to hit the market with a discrete GPU.


As for Sony, even the lightest of its 14-inch laptops, the E series, is on the heavy side, at 5.08 pounds, but if you're

flexible on screen size, we'd also recommend the 13-inch SA / SB series (now \$650 and up), which has a clean, timeless design, lightweight build, switchable graphics, healthy battery life and an optical drive, putting it in the same class as the 14-inch Series 5. Since we reviewed it last year, we've been recommending it left and right as a solid all-purpose laptop.

Wrap-Up

If you're in the market for a mid-sized laptop with a DVD burner for occasional backups, we can see why you'd look twice at the Series 5: it's thinner and lighter than most 14-inchers. It also has a pleasant keyboard-and-trackpad combo — something we can't say about all Ultrabooks. The problem is, without discrete graphics or an SSD, its performance trails both beefier laptops and smaller Ultrabooks. If you can live without the optical drive, most of the 13-inch Ultras we've tested are faster and yield longer battery life. And though traditional 14-inch laptops are heavier, their performance tends to be more robust, and their runtime is only marginally worse than the Series 5's (there are even exceptional machines like the \$550 Dell Inspiron 14z, which endures almost two hours longer).

If you're going to spend \$900 on a so-called Ultrabook, you may as well choose something like the HP Folio 13, which weighs less, performs better, lasts longer on a charge and has a healthy selection of ports (just not a high-quality display). Or, you know, you could shrug your shoulders at the Ultrabook fad and choose to spend hundreds of dollars less on something decently performing, but a little less portable. 

ity display). Or, you know, you could shrug your shoulders at the Ultrabook fad and choose to spend hundreds of dollars less on something decently performing, but a little less portable. 

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BOTTOM LINE

Samsung 14-inch Samsung Series 5 Ultrabook

\$949

PROS

- Thin and light for a 14-inch laptop
- Fast boot-up and resume times, runs cool
- Strong port selection
- Comfortable trackpad

CONS

- Below-average battery life
- Performance trails smaller Ultrabooks, other 14-inchers

This 14-inch Ultrabook doesn't justify its heft with long battery life or exceptional performance.



SHOT IN THE DARK

**Canon's 5D Mark III
Takes Low-Light Photography
to New Heights**

BY ZACH HONIG

FEATURE
REVIEW

SHOOT IN THE DARK.

That's essentially what you can do with the Canon 5D Mark III — with a top sensitivity of ISO 102,400, what was once unfathomable could soon become an acceptable standard. While point-and-shoot manufacturers are adding WiFi and GPS, and tweaking algorithms in an effort to boost sensitivity beyond the 6400 mark, Canon and Nikon are making clear cases for a DSLR upgrade, by drastically improving image quality. The 5D Mark II had an excellent three-year run, but with its 22.3-megapixel sensor, 1.04M-dot 3.2-inch LCD, improved autofocus

and high-performance video capabilities, Canon's latest full-frame DSLR is an entirely different beast, and a very compelling successor. We spent two glorious weeks with a pre-production 5D Mark III before reluctantly shipping it back to Canon. The biggest benefit (for us, at least) has been high-ISO shooting. While the former 5D could theoretically handle ISO 25,600 captures as well, its native range topped out at 6400 — venturing beyond that territory meant taking a hit on image quality, making it a seldom-used feature that benefited the camera's spec sheet far more than our low-light snap collection. With this latest iteration, we were able to capture sharp images in environments where there was far too little light to make out details with the naked eye, just as we have with the larger (and pricier) Nikon

D3S. Our resulting scenes look like they were lit with sophisticated rigs, or in an environment that allotted far more natural light than was actually available. Low-light shooting is but one benefit of the Mark III, however, so join us for a closer look in our field review.

Silent Shooting

You made it! As a gesture of our appreciation, we're going to let you in on a little Mark III secret — in fact, if that high-ISO shooting wasn't in the picture, this could very well have been our favorite new feature. It's called Silent Single, and it literally allows you to capture an image without hearing that familiar shutter sound. *Clunk. Clunk. Or clunk, clunk, clunk, clunk, clunk, clunk* — six times every second in high-speed mode. You can even do your rapid-fire snapping in Silent Con-





The mode uses a process called Pulse Width Modulation, which slows the speed of the mirror mechanism and the shutter charging motor. Because both operate at a slightly reduced speed, there's a longer delay between the time you hit the shutter release and when the camera begins an exposure,

continuous, though you're limited to three frames per second rather than the typical six, with an available workaround (more on that in a moment).

There's no question that silent shooting will impact your experience. Sure, you'll never be able to mask the fact that you're lugging around a full-size DSLR — so good luck being discrete — but you will be able to avoid attracting attention each time you snap a frame. The practical applications for this are endless — wedding photographers won't have to worry about disrupting the ceremony, street shooters can avoid alerting their subjects and nature photogs won't have to worry about frightening wildlife and ruining their shots. The feature will also be more than welcome on film and television sets, where photographers are often required to use cumbersome (and pricey) noise suppression equipment. It's not *silent*, as its name suggests, but it's very very *very* quiet.

So should you simply set Silent Single and forget it? For many photographers, there's really no reason not to.

but unless you need every second-fraction you can get, you shouldn't have any issue here. There's also a "Silent Shooting" mode available when in Live View, though this operates by using the CMOS sensor to control the start of an exposure, rather than the first curtain of the mechanical shutter. This mode can be even more advantageous, since it's completely vibration-free. It's also compatible with the high-speed continuous drive mode, letting you capture six frames per second — double the count available in Silent Continuous.

ISO 25,600 and Beyond

Yes, you know the Mark III can capture usable images at ISO 25,600 — the top sensitivity available on the 5D Mark II — but there's a noticeable improvement with this year's model, even with our pre-production sample. There's also an option to jump even further — to ISO 51,200 and 102,400 — but you'll only want to venture that high if you're more concerned about freezing the action than snapping a printable image.



ISO 3200

World Trade Center construction site in Lower Manhattan at dusk.

ISO 25,600

Cyclists at Battery Park City lit by street lamps only.



On our first day with the 5D paired with a 24-105mm f/4 L lens, we spent some time exploring Gyeongbokgung Palace in Seoul, South Korea, capturing sharp frames of building interiors from outside the barricades. If you've been to a similar complex in Asia — The Forbidden City in Beijing, perhaps, or temples in Thailand — you're entirely familiar with the scene of tourists forcing their way to the front of a group, point-and-shoot in hand with the flash engaged. After patiently waiting our turn, we were able to snap tack-sharp shots with *natural light*, holding the camera by hand. The same applied to night scenes, and other interior shots.

But what really sealed the deal was an evening shoot around Lower Manhattan. We first came upon the World Trade Center construction site, with 4 WTC shining bright against the sky

at dusk. There was more than enough light to snag crisp handheld shots at ISO 3200.

Minutes later, with the sun far below the horizon, we walked through Battery Park City towards the Hudson. We flipped to 12,800 to snag ferries hovering above the river, layered afront the New Jersey skyline.

Minutes later, ISO 25,600 became the norm, as we were able to capture daffodils at 1/40 second, and freeze cyclists and joggers mid-stride, lit by nothing but ordinary street lamps.



Next, a stop at an elevated position just above a small pedestrian bridge, with blue street lamps and a view of Jersey City in the background.

Just past the waterfront, we happened upon a view of a fog-covered 1 WTC, as photographed from the southern tip of Manhattan.

We then made our way over to Stone Street, to capture the happy hour excitement, lit by a variety of dim street and building fixtures.

Image Quality

As you've probably already gathered, we're very impressed with the Mark III's performance, both while capturing

ISO 25,600

Daffodils at Battery Park City, captured well after dark at 1/40 second, under light from ordinary street lamps.

images and when it came time to review them after a shoot. So much so, that we wouldn't hesitate to declare that image quality is absolutely spectacular. You can't pass judgment on a professional camera as easily as you can a tablet or smartphone. It's critical to test every setting, venture out into the field to experience every lighting scenario, and review your shots on a large high-res display, examining hundreds of images in great detail. Naturally, frames shot at ISO 800 and below were flawless — tack-sharp, with excellent color reproduction and spot-on white balance. Jumping into the four-digit ISOs did add some noise to



ISO 12,800

A small pedestrian bridge with blue street lamps overlooking Jersey City.

ISO 6400

A fog-covered 1 WTC, shot from the southern tip of Manhattan.



the equation, but it remained nearly indistinguishable through ISO 6400.

At 12,800 and 25,600, noise became easily visible in brighter areas at a 25-percent view, but both settings are quite usable. In fact, if we're shooting strictly for the web, we wouldn't hesitate to leave the camera tuned to 12,800, or even 25,600 if absolutely necessary. ISO 51,200 and 102,400 are noisy as all hell, to be frank, and while you may find these settings

to be usable, especially for the web, use extreme caution to avoid venturing this high whenever possible. Colors became more washed out as the ISO crept up, so noise isn't the only concern here. Still, we were thrilled with the camera's performance at ISO 12,800 and below, and wouldn't hesitate to use those modes for all but the most critical of shoots. It's also important to note that the camera we used was a pre-production sample,

so image quality could further improve, though Canon felt confident enough in this version to permit a review.

Focusing

You can't really prioritize features when it comes to a professional camera — everything needs to work, very well, and focusing performance is right up there with image quality in our book. When every shot counts, having a flawless focusing system is key, and thanks to the 61-point High Density Reticular Autofocus on board (the same system you'll find on the 1D X), we felt quite fulfilled in this department as well. Frame your subject, hit the shutter release, and the camera focuses — with dead-

on accuracy — in what seems like an instant. You can select any one of the 61 focus points, and once you do, the Mark III will bring whatever falls directly in front into perfect focus incredibly quickly, even when your subject is in near darkness.

For example, we were able to focus on our production assistant Jon Turi in a pitch-black room, lit by nothing more than a laptop near its lowest brightness setting at a distance of two feet. The camera took a second to find a lock, but was perfectly accurate once it did. Repeat the

process outside, or even in a well-lit room, and that second delay never comes into play. The Mark III focuses just as soon as you hit the shutter release.

ISO 12,800

A bar on Stone Street, during happy hour, lit by a variety of dim street and building fixtures.





Video

The 5D Mark III is an incredibly capable video shooter — in fact, some of its future owners may not use it to capture stills at all. We don't fit into that category, though we did snap some homebrew motion pictures whenever still photos just couldn't do it justice. Video looked fantastic, just as it did on the Mark II. You'll need to focus manually (or before you start a clip), which we found to be a challenge, especially when attempting to film a hands-on solo without any cameraman support. But if you're fortunate enough to have a follow focus at your disposal, you should be in good shape. There's no mechanical zoom option, so if you're feeling confident enough to tweak it manually during a shot, you'll probably want to use the mic input to avoid picking up any associated noise. And finally, there's no option to capture stills while you're recording video, though if you're shooting in 1080p — there's support for 1080 at 24/25/30p or 720 at 50/60p — you'll probably have plenty of frame grabs to use.



Battery Life

Battery life shouldn't be an issue on any recent DSLR. Period. This is also the case with the 5D Mark III — you're likely to fill your memory card long before you exhaust the battery, unless you happen to be using SanDisk's 64GB Class-10 Extreme Pro SD card — which works beautifully in this camera for both video and 6 fps stills, along with any high-performance CF flavor. We were able to fire off 1,000 stills and a few minutes of HD video before the 1800mAh LP-E6 battery even hit the 50-percent mark, and made it to a whopping 2,200 frames before that compact rectangular pack went kaput. We spent an uncharacteristic amount of time adjusting settings and using Live View, as well, so you'll probably see even more impressive figures. Considering that we're unlikely to push past the 500 mark on even the busiest of shooting days (liveblogs being the obvious exception), it's safe to say the Mark III will make it through an entire week


on the CES show floor without requiring a recharge.

Design

Did we save the best for last? Well, in a way, but you'll spend as much time thinking about the camera's design as we're going to spend on it here. We're really struggling to find any design flaws with the 5D Mark III — it's a sharp looking camera, with a practical and familiar layout, an intuitive menu structure and a gorgeous optical viewfinder. The stellar 3.2-inch LCD doesn't tilt or swivel, but you can view it from above, below or to either side, if necessary. Some ports have seen some position tweaking, but they're all there: mic input, headphone, mini USB, HDMI, etc. There are SD and CF slots, as we've already covered, along with a slot for the same excellent battery used in the 5D Mark II. It's beautiful. It's familiar. It just works.

Wrap-Up

We honestly haven't been this in love with a camera since we reviewed the Sony NEX-7. And while there's little to compare from a price and design perspective, we're seriously questioning that affair, and completely ready to sacrifice the compact design in favor of this incredibly capable do-everything shooter. At \$3,499 for the body only, Canon priced this latest 5D higher than its predecessor, which rang in at \$2,699 at launch. Still, if you've been considering a 5D Mark III purchase, don't hesitate — it's worth the investment, we promise. And if you've

already placed your order or have one in the mail, get ready to have your world turned upside-down — this thing is simply amazing, in every way. 

Zach is a Senior Associate Editor and heads up Engadget's features content. He's also a lifetime lover of everything aviation and photography.

BOTTOM LINE

Canon EOS 5D Mark III

\$3,499 (body only)

PROS

- Incredible image quality through ISO 25,600
- Excellent focusing system
- Comprehensive HD video options
- Brilliant 3.2-inch LCD with wide viewing angle

CONS

- Expensive, especially as a subsidized device
- No autofocus during video capture

If you're in the market for a full-frame DSLR, you can't go wrong with Canon's 5D Mark III.



Samsung Galaxy Tab 7.7 (Verizon Wireless LTE)

This is one of the best Android tablets you can get on the market today... if money is no object.

BY BRAD MOLEN

Samsung's Galaxy Tab series boasts seven distinct models. Throw in all of the variants of each one — LTE, WiFi, WiMAX and even the Galaxy Note 10.1 if you want to be picky — and all of a sudden the number of tablets produced by the Korean electronics giant over the past sixteen months shoots up to exceed twenty. In a vast sea of incredibly similar-looking Android slates, there's one

model that dares to be different: the Galaxy Tab 7.7, an oddly sized tablet with a stunning Super AMOLED Plus display.

Last month, we were given the opportunity to review the global version, and definitely liked what we saw. It's an understatement, then, to say that we were ecstatic to give Verizon's LTE version a run for its money (which, at \$500 with a two-year commitment and \$700 without, is a lot). What did Big Red choose to tweak? How's the battery life once you factor in that next-gen network? These answers and more are coming your way in the paragraphs ahead.

Hardware

When we reviewed the HSPA+ Galaxy Tab 7.7, we were actually a bit surprised at how different it is from the rest of the tablets in Samsung's stable. It isn't just a me-too tablet, and the design choice is absolutely refreshing. We must say that brushed metal spanning the back of the device makes for an elegant look, not to mention a clear departure from Samsung's usual all-plastic build. Granted, the Tab 7.7 still takes advantage of plastic on the top and bottom to allow each antenna the ability to do what it does best, which actually makes the device look as though Sammy has taken a page out of HTC's design book.

When it was Verizon's turn to make its own changes to the tried-and-true tablet and offer the device on its own LTE network, Big Red didn't try to reinvent the wheel. If it's not broke, why fix it, right? Aside from the obvious — it swapped out



the original HSPA+ / EDGE radios with LTE / EVDO / CDMA — we noticed the addition of an IR sensor similar to the one found on the Galaxy Tab 7.0 Plus, which is mainly used in concert with Peel's Smart Remote app. This version also sports a different color scheme, with the light gray plastic ends replaced by a darker hue.

Adding LTE to the tablet also translates into a microscopic increase in thickness. We're talking an extra .11mm, or .004 inches for all the Americans reading this. For a device that is already amazingly thin at 8mm (.31 inches), this extra padding shouldn't have any bearing on your opinion of the device. It also puts on some more weight, but just as we noted regarding the thickness, five grams (340g compared to the original's 335) isn't going to dissuade potential buyers.

What hasn't changed is the Super AMOLED Plus display, which boasts a resolution of 1280 x 800 and a pixel density of 196ppi. When we first reviewed the Tab 7.7, this was one of the best tablet screens we had laid eyes on; it's still as brilliant as it was before, but it's no longer the bar-raiser. No, not even two months later the competition already looks up to a new contender, which happens to sport a 264ppi Retina display. This doesn't downplay the beautiful color saturation found on Samsung's panel, of course; it's just no longer the absolute best.



The display is just as brilliant as it was before, but it's no longer the bar-raiser.




That said, we love the idea of having a top-notch 7.7-inch display. Truly, the form factor and screen size come together to achieve a near-perfect balance between easy content consumption and portability. No, it's not going to slip into your jeans pocket, but it fits easily into most purses and even managed to find a home in this editor's suit pocket. But what if you're not donning either (or your suit lacks the tablet-sized pockets)? Fortunately, it's still small and light enough that you don't feel like

you're carrying around a laptop or net-book, which is to say, you could get very comfy using this on the regular.

Taking a tour around the 7.7, Samsung made use of all four sides. The left edge features a miniSD and micro-SIM slot, each one veiled by a flimsy cover that feels like it's just barely hanging on for dear life. External memory may be an important factor here, since the Tab only comes with 16GB onboard. On the bottom you'll see Samsung's proprietary tablet charger flanked by two speakers that offer superb audio quality — provided you don't care about a stereo sound experience when watching movies in landscape mode, that is, since these are the only speakers found on the device. The right side is blessed with the all-important power / screen lock, volume rocker and aforementioned IR emitter, placed smack-dab in the middle. How about the top? Not much besides a mic and 3.5mm headphone jack.

When taking a look at the back, your attention is going to be held captive by the copious carrier branding plastering the device. Since Verizon adds its own pair of logos to the top-center of the tablet, it's awfully hard not to notice. Add in the Big Red logo on the front and there's absolutely no denying which network this tablet runs on. Sammy's own name shows up, too, but in more modest fashion. You'll find the 3.2-megapixel camera in the top left corner, along with an LED flash. Flipping the tab over to the front won't reveal any surprises except for the 2-megapixel front-facer located near the



BENCHMARK	GALAXY TAB 7.7 LTE (VZW)	GALAXY TAB 7.7 HSPA+ (GLOBAL)	TOSHIBA THRIVE 7"	SAMSUNG GALAXY TAB 7.0 PLUS
Quadrant ¹ (v2)	3,363	N/A	Would not run	2,700
Linpack ¹ (single-thread)	53.91	53.76	31.37	28.98
Linpack ¹ (multi-thread)	84.76	81.07	57.08	69.47
NenaMark1 ¹ (fps)	59.5	59.5	43.1	59.3
NenaMark2 ¹ (fps)	42.6	37.9	19.2	41.8
Neocore ¹	1,215	1,220	1,045	1,198
Vellamo ¹	1,215	1,220	1,045	1,198
SunSpider 0.9.1 ²	1,993	1,488	2,303	1,679

Notes: ¹ higher numbers are better ² lower numbers are better

top of the left landscape bezel — an ideal, out-of-the-way spot for all those times you'll be using the 7.7 in portrait mode.

And while this should go without saying, we'll make this crystal clear, given that it seems to be a hot topic at the moment: the Tab 7.7 doesn't come with a Wacom digitizer built-in like the Galaxy Note does. As a result, the S Pen doesn't work on it. Sorry, folks — you'll just have to keep using your finger or rubberized stylus.

Performance

The Tab 7.7 does about as well as you'd expect from an Exynos-powered device. Sammy's proprietary dual-core high-powered SoC is clocked at 1.4GHz, and buffered by a full gigabyte of RAM and Mali-400MP GPU. Those components combined help the tablet run quite smoothly. As usual, we ran several benchmarks and found most of them to be on par with the international Tab 7.7,

though we noticed the device's SunSpider scores weren't nearly as good. We also couldn't accurately compare Quadrant results because our original review was benchmarked on v1, but the LTE version cranked out some impressive (and, we might add, Exynos-worthy) numbers that outshine most comparably specced devices.

Overall, we were just as pleased with its performance as we were the first go-round. Not that we're at all surprised — most of the internals are completely the same, after all — but unfortunately this means we also ran into the same occasionally sluggish behavior we've observed in other Honeycomb tablets. While games and apps run to our complete satisfaction, the 7.7 stutters from time to time in different scenarios, whether it be web browsing or launching apps. We also noted some lapses in responsiveness to finger input. These flickers were mini-

mal, however, and we expect to see a great deal of improvement once the tab gets an upgrade to Ice Cream Sandwich in the supposedly near future.

Using LTE, this Galaxy Tab 7.7 gave us the best battery performance we've seen in any tablet, ever.

Battery Life

When it comes to LTE-enabled devices, the million-dollar question is, just how skimpy is the battery life? It's no secret that one of the biggest challenges facing phones or tablets using this next-gen technology is some worryingly short runtime. Naturally, we were curious to see how a device like the Tab 7.7 LTE would fare, given the exemplary performance on its HSPA+ counterpart. The 5,100mAh juicepack is rated for 12.5 hours, which is actually a two-and-a-half-hour improvement over the global version's estimated runtime — an odd concept, since this one offers an identical battery.

Our skepticism, however, was proven completely wrong in this case. The Verizon Tab's battery lasted a grand total of

TABLET	BATTERY LIFE
Samsung Galaxy Tab 7.7 (Verizon Wireless LTE)	12:42
Samsung Galaxy Tab 7.7 (Global Edition)	12:01
Apple iPad 2	10:26
ASUS Eee Pad Transformer Prime	10:17
Samsung Galaxy Tab 10.1	9:55
Apple iPad (2012)	9:37
Motorola Xoom 2	8:57
HP TouchPad	8:33
Lenovo IdeaPad K1	8:20
Motorola Xoom	8:20
T-Mobile G-Slate	8:18
Samsung Galaxy Tab 7.0 Plus	8:09
Lenovo ThinkPad Tablet	8:00
Archos 101	7:20
Archos 80 G9	7:06
RIM BlackBerry PlayBook	7:01
Acer Iconia Tab A500	6:55
Sony Tablet P	6:50
T-Mobile Springboard (Huawei MediaPad)	6:34
Toshiba Thrive	6:25
Samsung Galaxy Tab	6:09
Motorola Xyboard 8.2	5:25
Velocity Micro Cruz T408	5:10
Acer Iconia Tab A100	4:54
Toshiba Thrive 7"	4:42

12 hours and 42 minutes. To be clear, we had LTE turned on and were playing video the entire time, and it still lasted 41 minutes longer than the global HSPA+ version. This means that moderate users will likely enjoy anywhere between a day and a half to two days before requiring a recharge. The Galaxy Tab 7.7 LTE gave us the best battery performance we've seen in any tablet, ever, leaving its globe-trotting twin as a silver medal-winning runner-up. For those who are wondering, these rankings include the LTE-capable iPad that debuted last week. To be fair, Apple's latest tablet has a faster drain because it's trying to support a larger screen with a much higher pixel count, but it also uses a mind-boggling 11,560mAh battery — more than double the size of the Tab 7.7's. Suffice to say, power users should be looking at the 7.7 with a great deal of interest.

Camera

Cameras don't get much respect on tablets. Truth is, front-facing shooters typically make more sense on slates than rear-facing ones, since it's much less awkward to conduct video chats than it is to snap a picture — or worse, a home movie — on the thing. Add to this the fact that the camera here is low-grade even compared to other tablet cameras, and you have yourself plenty of mediocre images. Allow us to emphasize that this doesn't mean your pictures will be horrid, but the lower resolution — combined with the struggle of keeping such a large device still long enough to get a photo that doesn't wind up blurry —



makes it pretty difficult for us to recommend that you grab this over your five or eight megapixel smartphone cam.

These unpleasantries out of the way, the 7.7 is smattered with tons of settings (panorama mode, macro, metering, white balance, etc.) that can at least increase your likelihood of taking a lovely shot. It offers autofocus and the ability to change the point of focus by tapping on different parts of the viewfinder. Night mode is able to capture some extra back-light to help produce fairly reasonable low-light results, although a lot of noise is still present. We rather like the detail in our macro shots, including texture, particles of dust and so on, but again you shouldn't expect to see anything better than your average Galaxy S II here. For what it's worth, the LED flash works well, capturing plenty of color when taking shots in the middle of the night.

All this, and we haven't actually covered normal images yet. That's mainly because they're ho-hum for the most part. Though Samsung is known for its high-quality image sensors, this particular 3.2-megapixel autofocus flavor hovers right around average. We were able to take plenty of detailed shots with nat-



ural colors (think a blue-streaked sky), but we found our shots to be the victims of routine washouts, especially in the middle of the day. Oh, and what about the 2-megapixel front-facing camera? When taking self-portraits yours truly ended up bathed in harsh light, which ultimately overpowered the shot (as if this editor needed to look paler).

Videos can be recorded in up to 720p, but we can't recommend using the 7.7 to take movies of your vacation to Texas and inviting your friends over to share the memories on an HDTV. The videos are none too detailed, and moving objects often look blurry. Not to mention it can be difficult to keep your arms and hands from shaking as you try to capture those precious moments in a live setting. Better than nothing when you're in a pinch, certainly, but don't get out the popcorn to watch the results.

Software

It should definitely not come as a surprise that the LTE-flavored 7.7 runs the same firmware as its global cousin: Android 3.2 with Sammy's proprietary

TouchWiz user interface layered on top. Though Samsung has confirmed Ice Cream Sandwich is on its way, the company's stopped short of giving a firm ETA. It's likely we won't see the upgrade show up on the LTE version until after its global buddy gets first dibs, due to the added complexity in radios and the usual litany of carrier testing.

One piece of software you won't find on this model is the dialer. Verizon has chosen not to allow native calls, saving you from the temptation to hold the massive thing up to your ear. No VoIP apps come pre-installed on the device, either, freeing you up to grab whatever service you'd prefer.

And yes, there's definitely bloatware. Samsung brings its usual suite of Hubs as well as Allshare, Samsung Apps, pen memo and a few tools for editing videos and photos. Verizon's contributions to the selection of pre-installed apps include its Backup Assistant Plus service, Blockbuster, *Dead Space* (the first level comes free), Mobile Hotspot, My Verizon Mobile, Amazon Kindle, Quickoffice HD Pro, Videosurf and The Daily. The Peel Smart Remote app, which takes advantage of the built-in IR emitter, is also included as part of the whole deal but we found it quite useful when we hooked it up to our HDTV and satellite service.

Pricing and Data Plans

The 16GB Galaxy Tab 7.7 LTE is available as both a subsidized and prepaid device on Verizon and is a bit steep at \$500 with a two-year commitment and


\$700 without. If you're locked into a contract, your plans start at \$30 a month for 2GB of data with options to bump up your allowance to 5GB for \$50 and 10GB for \$80. If you exceed your allotted amount, you're looking at shelling out \$10 for every gigabyte you use.

So let's just say you're not interested in getting yourself stuck in a long-term relationship with Verizon. We can't blame you, of course. Big Red's a la carte offerings don't stray away from its postpaid ones, and as a perk for not signing the dotted line, you even get one extra option at \$20 for 1GB. Want to go over that amount? Sorry, no can do — the prepaid plans stop cranking out the data as soon as you hit your maximum allowance.

Wrap-Up

The Galaxy Tab 7.7 is one of our favorite Android tablets to date, and fortunately Verizon's version doesn't give us any reason to doubt our feelings at all. It still keeps the same solid design, good performance and gorgeous display, and it offers better battery life using LTE than what we were able to eke out of its HSPA+ compadre. If you're specifically interested in a tablet that runs Android, we can't imagine you'd find much better elsewhere.

Unfortunately, you're also paying a hefty premium for the device: it only comes with one storage option (16GB) and will run you \$500 when you sign up for a two-year commitment. Sans contract, you'll be forking out \$700. You might be getting the best available tablet in that size and form factor, but you can

also shell out close to the same amount of money for a new iPad or Transformer Prime. Oh, the anguish of decisions. We suppose there could be worse things to worry about in this life, right? 

Edgar Alvarez contributed to this review.

Brad is a mobile editor at Engadget, an outdoorsy guy, and a lover of eccentric New Wave and electro. Singer and beatboxer.

BOTTOM LINE

Samsung Galaxy Tab 7.7 (Verizon Wireless LTE)

PROS

- Thin and well-built
- Brilliant Super AMOLED Plus display
- Incredible battery life on LTE
- Fast performance

CONS

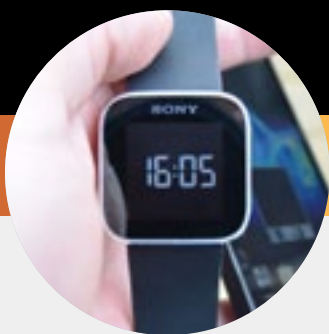
- Camera won't win many fans
- Expensive, especially as a subsidized device

This is one of the best Android tablets you can get on the market today... if money is no object.

>> IN REAL LIFE

Welcome to IRL, an ongoing feature where we talk about the gadgets, apps and toys we're using in real life and take a second look at products that already got the formal review treatment.

1.



2.



3.



Sony SmartWatch, Otterbox Universal Defender Case and a Blendtec Blender

BY ENGADGET STAFF

At last! A story where it would actually be appropriate to comment, “Will it blend?” In this week’s IRL, our very own Darren Murph takes a slightly *different* tack than usual, gushing about his new \$400 fruit crusher. On an equally rough-and-tumble note, Brian brings his trusty Otterbox iPhone case

into a Nevada sandstorm with 50 mile-per-hour winds, while Sharif tests out Sony’s SmartWatch — from the comfort of his London neighborhood, of course.

Sony SmartWatch

I’ll start by admitting I don’t wear a watch. Sometimes I loiter in front of a



Tag Heuer window display in the mall and think, “Hey, maybe wearing one of those would make people take me seriously.” But then I trip over my laces and move right along to the Sony Store. Except here’s the thing: your local Sony Store will also start selling watches any day now. Android-powered Sony SmartWatches to be precise, which will be priced at \$149 and pair with compatible smartphones via Bluetooth.

I was lucky enough to try one out for a week and, although it has a couple of imperfections on the software front (all of which should be easily remedied) it was joy to have it on my wrist. For a start, it put an end to missed calls. I have a hearing defect inherited from

my father, which means that when my wife calls I hardly ever hear the ring or feel the vibration, and then I usually miss the ‘missed call’ notification too. It’s only when I come to plug my phone into a charger that I see the distraught SMS asking where I’ve been for the past three days. So long as you set up all its mini-apps just right, the SmartWatch vibrates and displays key content for incoming calls, missed calls, text messages, calendar appointments and emails (the contents of Gmails notwithstanding). The total effect is that it makes it much harder to let life pass you by.

The strap is comfy and I was able to wear the watch all day long while still keeping enough juice in my paired Xperia S to reach nightfall. Beyond these practicalities, my particular favorite feature is the fact that the SmartWatch doesn’t tell the time. Well, it does, but only if you double-tap the screen, at which point it displays the time and date, and allows you to pinch-zoom out to a main menu. For most of the day, however, the SmartWatch’s panel retains a lovely mysterious blankness, leaving just the funky-looking rubber strap and evergreen Sony logo to add to your gravitas. To sum it up, the SmartWatch

is a promising take on the kind of watch you may have dreamed of as a kid, and kudos goes to Sony's mobile division (formerly Sony Ericsson) for becoming exciting all of a sudden. Obvious next step: Skype and a front-facing camera.

— Sharif Sakr

Blendtec Total Blender

Did I really end up with a blender in my house that costs more than a subsidized iPhone 4S? Yes, yes I did. My wife convinced me to spring for the very same blender that we've watched tear things up for years courtesy of *Will It Blend?*, and while I was as skeptical as they come about blowing \$400 on something that creates smoothies, I might as well be enlisted as Blendtec's newest product evangelist.

The goal here was to get a fast, reliable, powerful machine that would make smoothies more accessible. I'm aiming to eat healthier, you know? Turns out, I end up wanting every single meal to come from this thing. Just throw some whatevers (fruits and

veggies that you want masked, too) in there, hit a button, and a few seconds later it's done. And it's not just "done," it's done crafting the most elegantly smooth and textured liquid meal known to man.

I can't really explain how it makes the end result so smooth, but it does. And it's magical. The clean-up is also wildly easy, and if you're looking to splurge, the milkshakes from here — fruit and






all — are intensely delicious. It's actually one of the few gadgets I now force every single houseguest to watch in action. — *Darren Murph*

Otterbox Universal Defender Case

Last week Otterbox saved my life — well, my phone's life, but it's a fine line these days, really. I've been through a number of bulky cases to compensate for my gadget paranoia, at one point lugging around the tank-like AGF Ballistic case, which garnered all manner of sideways glances when I pulled it out of my pocket, with people genuinely shocked

that there was an iPhone inside all of that plastic. I finally settled on Otterbox's Universal Defender, a silicon skin wrapped around hard plastic that manages to be extremely rugged without looking entirely ridiculous.

Naturally, I had the case on me last week, when Tim and I traveled to the desert to shoot a segment for the most recent Engadget Show. And yes, against the advice of our tour guides, I kept it in the pocket of my jeans as we set out through 50mph winds in the windowless Polaris RZR all-terrain vehicles — winds so strong, mind you, that they grounded all flights out of McCarren airport for the better part of the day. The sand — and perhaps more appropriately, a fine desert dust — went everywhere: through the masks, through the goggles. The only place it didn't manage to get inside of was the iPhone.

When I finally peeled the Defender off at the end of the day, it was clear a bit of sand had managed to make its way through, though not into any place where it could do any real damage. A quick blast of canned air shooed away any lingering dirt, and the phone was no worse for the wear. Of course, I still don't recommend taking your phone into a Nevada sandstorm — but if you do, at least make sure you bring protection. — *Brian Heater* 



MUTEMATH'S
DRUMMER TAKES A
BREAK FROM THE
ODD SOUL SPRING
TOUR TO CHAT
ABOUT MC HAMMER,
INSTAGRAM AND AN
IPOD NAMED BISCUIT.

DARREN KING

Q&A

What gadget do you depend on the most?

I suppose I would rather lose my phone than my laptop. My house got broken into a couple months ago but thankfully I had left for tour earlier that day so my trusty gadgets were all with me. I had been programming the background videos for our live show and hadn't backed them up yet so had they gotten there a day earlier it could have been bad news for me.

Which do you look back upon most fondly?

I get sentimental about my first portable cassette player / fm radio. I bumped a lot of MC Hammer on that thing. A couple years ago I sat next to Hammer on a Southwest flight and got to tell him all about it. It was nice to finally have a little Hammertime.

Which company does the most to push the industry?

Mutemath. Just kidding.

What is your operating system of choice?

Mac OS X 10.6

What are your favorite gadget names?

Uhh. I used to name my gadgets but I stopped for some reason. I had an iPod named "Biscuit" for a while.

What are your least favorite?

All phones have bad names. You can really give a phone a cool name. It's a phone, not a car.

Which app do you depend on most?

Instagram. I love having a guitar tuner in my phone as well.

What traits to you most deplore in a smartphone?

The temptation to use it while driving. The lost art of meaningful, uninterrupted conversation.

Which do you most admire?

Facetime, though I rarely use it. I'm just thankful that I can keep in

I would give it some sort of self-defense option; a knife, pepper spray and taser combo — but only my phone, of course.

touch with my wife while we are apart. The app Viber helps us stay in touch while overseas.

What is your earliest gadget memory?

Teddy Ruxpin. I still have him.

What technological advancement do you most admire?

I like that we are slowly getting closer to space travel being a common thing.

Which do you most despise?

I just hate the way we talk to each other while looking down at our phones. Gross.

What fault are you most tolerant of in a gadget?

I don't fault my stuff for working slowly if I've filled the hard drive to the max. It's not the gadget's fault if I'm too lazy to manage the files.

Which are you most intolerant of?

Dropped calls. Phone service is not cheap.

When has your smartphone been of the most help?

When driving through Oklahoma, low on fuel.

What device do you covet most?

All analog synths. FX pedals. Music gadgets.

If you could change one thing about your phone what would it be?

ANSWER


What does being connected mean to you?

It means I have to fight to be focused on the task at hand.

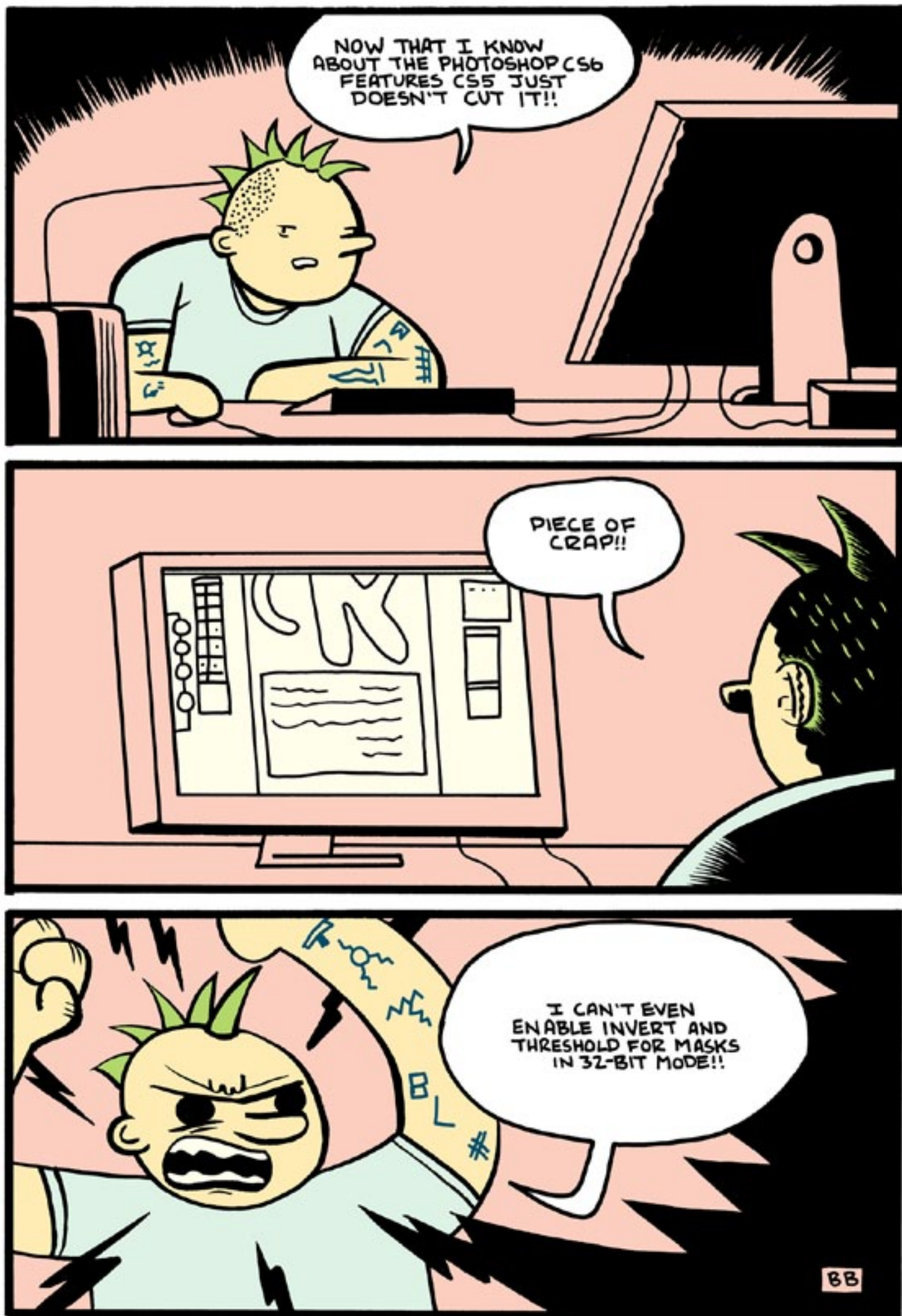
When are you least likely to reply to an email?

When it is spam regarding the size of my penis. There is no drug that could help me.

When did you last disconnect?

A few days ago while visiting dear friends in Asheville, NC. They live up in the mountains so I was forced to disconnect. It was nice. 

Q&A : Darren King



The Last Word - Box Brown

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The screenshot displays the Engadget iPad app interface. At the top, there's a search bar labeled "Search Engadget". Below it, a horizontal scroll bar shows various tech products like the iPhone 3G, iPhone 3GS, iPhone 4, and iPhone 5. The main content area features several news articles with accompanying images and timestamps. At the bottom, there's a "NOW PLAYING" section for the "Engadget Podcast 246 - 07.01.2011" with a play button and a progress bar. Below the podcast player, there's a row of four podcast thumbnails with dates: "Engadget Podcast 09.27.2011", "Engadget Podcast 09.23.2011", "Engadget Podcast 09.20.2011", and "Engadget Podcast 09.16.2011". At the very bottom, there's a navigation bar with icons for Home, Photos, Videos, Saved, Topics, Archives, Settings, and Podcasts.

1 HOUR AGO
IRL: Sony NEX-C3, Garmin Forerunner 110 and the Elgato Turbo.264 HD

3 HOURS AGO
iPhone 5 to have 21Mbps HSPA+ data? China Unicom says so

30 MINS AGO
Dell confirms XPS 14z will go on sale in the US in the 'coming weeks'
Remember that XPS 14z Dell teased at IFA? Yeah, well, it's arriving soon. As in, "the coming weeks" soon. The company just confirmed it's on the cusp of shipping here in the states, and while the outfit stopped short of giving a starting price, it's good and ready to talk specs. As we reported last month, it has the same industri...
By Dana Wollman September 29, 2011 12:35PM

54 MINS AGO
iPhone 5 cases and realistic unibody dummy show off incredible slimness
While we're only five days away from finding out the true appearance of the next-generation iPhone, our good friends over at BENM.AT went ahead and crafted their very own unibody dummy using CAD drawings, CNC tools and a block of aluminum -- seriously, that's how they roll! Granted, this work's only based on...
By Richard Lai September 29, 2011 12:13PM

1 HOUR AGO
Kobo's Vox Android tablet appears online briefly, gets Canadian release date and pricing
A day after another little-known e-reader manufacturer announced a tablet, a new Android slate from Kobo made a brief online appearance on Future Shop's site, only to be quickly taken down. According to the Canadian retailer, the FCC-approved tablet will offer up a 7-inch display with a 1024 x 600 resolution, WiF...
By Brian Heater September 29, 2011 11:53AM

Iceland gets a data center to call its own, still believes in fairies
You say Iceland, we immediately think Eyjafjallajökull -- and no, we haven't had a narcoleptic collapse upon these very keys. It's been over a year since that volcano swept the headlines and interrupted air travel, providing outsiders with a skewed

NOW PLAYING:
Engadget Podcast 246 - 07.01.2011

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